Vol. IX AUGUST, 1919 No. 8

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# AMERICAN JOURNAL OF PUBLIC HEALTH

THE JOURNAL OF THE AMERICAN PUBLIC HEALTH ASSOCIATION

## Presenting This Month

**Sterling Addresses and Reports from the State and Provincial Health Conference, by**

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DR. GOODNOW, President of Johns Hopkins
DR. RANKIN, of the North Carolina Board
DR. FARRAND, President, American Red Cross
DR. McLAUGHLIN, U. S. Public Health Service

TOGETHER WITH MANY OTHER MATTERS OF INTEREST AND CONSEQUENCE

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Vol. IX AUGUST, 1919 No. 8


## CONSTITUTIONAL FOUNDATIONS OF FEDERAL PUBLIC HEALTH FUNCTIONS.


FRANK J. GOODNOW, LL.D.,

*President, Johns Hopkins University, Baltimore, Md.*



Read before the Conference of State and Provincial Boards of Health, June 7, 1919, at Atlantic City, N. J.


**Few health officers know where Federal health authority comes from. Dr. Goodnow unravels the legal maze and tells them it is a function of Commerce and of the power of Congress to lay taxes and duties. Public Health is therefore national in foundation and application.**

THAT the government of the United States is a federal government is a commonplace not only to him who has made a study of its constitutional law but as well to the average citizen. The legal effects of the federal character of our government are, however, not altogether clear even to the lawyer, much less to him who has not been initiated into the mysteries of our constitutional law. The constitution contains so many general clauses that resort must continuously be had to the courts for interpretation and construction, with the result that the exact and precise meaning of many constitutional provisions can be ascertained only by an examination of a long list of decisions. Where no decisions have been made on a particular point, we must reach our conclusions as the result of argument based on decisions made with regard to other points.

There are, however, certain general principles of construction, a knowledge of which will be of great assistance in enabling us to reach a determination as to the extent of power possessed by the national government and is absolutely necessary to the answer of the question which has been chosen for discussion today.

Probably the two most important of these principles are:

First, that the national government may, under the constitution, exercise only those powers which have been clearly granted to it by that instrument; and

Second, that where the constitution thus clearly grants a power to the national government, the action of that government in the exercise of such a power is binding upon the states and upon the people of the United States even in case there may be a conflict between a national law and a state law.

To state these principles in another way it may be said that the national government is a government of enumerated powers, the presumption, where no mention of a power in the national government is made, being in favor of the power of the states, but state law must give way to national law in the case of all matters as to which the national government is competent and has taken action. The national government, although of enumerated powers, is supreme in the exercise of the powers enumerated.

If now we examine the constitution with the purpose of finding in the enumeration of powers granted to the national government

the mention of any power over the public health we shall discover that no such power has been expressly granted. We shall find, however, one clause granting the power to make all laws necessary and proper for carrying into execution any of the powers vested by the constitution in the government of the United States or in any department or officer thereof.

We must, therefore, examine some of the general clauses of the constitution with the purpose of ascertaining whether any of these when combined with the power to make all laws necessary and proper for carrying into execution the powers granted are or may be construed as granting to the national government powers relative to the public health.

The most important of these general clauses from the point of view of today's discussion is unquestionably the power to regulate commerce with foreign nations and among the several states. It is to be noted that the constitution neither defines nor describes "commerce," nor states what is the meaning of the words "regulate" and "among the several states."

At first, governed by the particularistic states rights ideas of the time, which were justified in large measure by the existing economic conditions, both Congress and the Supreme Court took a rather narrow view of the extent of this power. Thus when it came to be regarded about 1820 as necessary that the central government should make some provision for means of communication between the eastern states and the new states which had been established west of the Alleghany Mountains and in the Mississippi Valley, it was believed that the only authority possessed by Congress was to build roads, which after they were built should be handed over to the states. The states alone, it was thought, might administer them and care for their maintenance and repair.

The gradual centralization of economic conditions, which has been characteristic of American development, has, however, caused the adoption, at the present time, of a much more extended conception of national power under the constitution. Thus the meaning of the word "commerce" has been greatly enlarged. Commerce as a subject of congressional regulation embraces at the present time, in the first place, transportation by both land and water and the means and instrumentalities of transportation. Commerce, *i. e.*, the thing which under the constitution may be regulated by Congress, therefore includes not merely the act of transporting persons or things from one place to another, but as well both artificial land and water routes and their terminals such as harbors, the vehicles by which the act of transportation is performed, and the persons, both carriers, shippers, and consignees on the one hand, and employers and employed on the other, who are engaged in the act of transportation.

In the second place, commerce embraces purchases and sales and the negotiations entered into in order to lead to sales of all articles ordinarily made the subject of trade, as well as agreements for such purchases and sales, made both between the purchasers among themselves, and the sellers among themselves, on the one hand, and between the purchasers and sellers with each other on the other.

In other words commerce in the constitutional sense includes on the one hand the physical instrumentalities by which commerce is carried on and on the other hand the transactions on which trade relationships are based.

Finally, while commerce does not include manufacturing, the tendency is to regard manufacturing as a part of commerce where its regulation is necessary to the effective regulation of what is admittedly commerce.

All of these things, operations, and processes are regarded as within the regulatory power of Congress, provided they can be regarded as a part of commerce "with foreign nations" or "among the several states." Commerce of such a character is held to be that which originates in one state and terminates in another, as well as commerce which originates and terminates in the same state, provided the regulation of such commerce is necessary to the effective regulation by Congress of what is recognized as commerce with foreign nations or among the several states.

The word regulate is given an equally wide

meaning. Thus it is held that the power to regulate commerce includes the powers:

First, to construct, or provide, by the chartering of companies, for the construction of routes by land or water over which commerce with foreign nations among the several states is possible, and to lay down the rules to be observed by those making use of such routes.

Second, the power to regulate includes the power to determine the private legal relations which shall exist among those persons engaged in the commerce subject to regulation, so far as those legal relations may affect the carrying on of commerce. Thus Congress may regulate the contracts and liabilities between shippers and carriers, between carriers and their employees, between sellers and between purchasers, and between sellers and purchasers.

Finally, the power to regulate includes the power to prohibit commerce in certain articles and certain methods of carrying on commerce and to license those engaged in commerce.

The enormous extension which has been given to the power of Congress to regulate the commerce among the several states is causing the old distinction between a commerce among the several states which is subject to Congressional regulation and commerce within the limits of a single state which is subject to state regulation, almost to disappear and to subject all commerce to the power of Congress. This distinction has disappeared with regard to commerce carried on by water, which is spoken of as navigation.

The power of the national government to regulate commerce may be exercised, it will be noticed, not merely with the idea of promoting commerce from an economic point of view but as well as with the idea of limiting commerce in order to protect the public health or safety. It includes, therefore, the power to establish quarantines and to deny the right of entry into the country or of transportation from one state to another to objects or persons where that entry or that transportation may, in the opinion of the competent authorities of the national government, endanger the public safety.

The health powers which Congress possesses under the commerce clause are as a matter of fact, both because of actual conditions and also probably owing to our constitutional theory, larger in the case of foreign commerce than in that of commerce among the several states. At any rate, it is certain that in the case of foreign commerce the same perplexing questions which present themselves in the case of commerce among the several states do not arise. In the case of foreign commerce the only action the national government can, in the nature of things, attempt to take is action in the nature of an embargo or an inspection. There is no question that it may do either of these things.

In the case of commerce among the several states, however, conditions are different. Congress may, it is true, deny to almost anything it sees fit the right to be an article of interstate commerce, and may punish those who, contrary to the law, ship the prohibited article from one state to another. But it is incompetent to prohibit either the manufacture or the use within a state of an article however harmful, since these are matters within the jurisdiction of the states and not in that of the national government. All the United States government can do as a direct result of its commerce powers is to prohibit, under criminal penalties, the interstate transportation of articles.

Generally speaking, interstate or foreign transportation does not begin until the articles start on their journey. Any action which precedes transportation has to do with manufacture rather than with commerce and is, therefore, not within the competence of the national government except in so far as its regulation may be necessary and proper for the effective exercise of the power to regulate commerce. Transportation, furthermore, ceases when the articles have reached their destination and have either been taken out of the original package in which they were shipped or have left the hands of the person who brought them into the state, *i. e.*, the consignee. Congress may not regulate or prohibit their use after they have thus fallen under the power of the state.

The United States government may, however, as has been said, provide for the criminal punishment on the one hand of him who makes

the prohibited shipment and on the other hand of the consignee who sells the prohibited article before the original package is broken. To exercise this power, however, it must have the means of determining whether the article transported falls within the prohibited class. It thus may provide for the labelling of the articles transported and for the inspection at the place of manufacture of articles intended for interstate transportation as well as for the licensing of the persons engaged in their manufacture. The United States government has not, it is true, either inspection or licensing powers to the exercise of which manufacturers of articles destined for consumption within the state of manufacture must submit, but it has the power to deny to articles not inspected and not made by licensed manufacturers the right of interstate transportation.

Probably the two most notable attempts of the national government to regulate commerce among the several states in the interest of the public health are the Pure Food and Drugs and the Child Labor Act. The first, which forbade the transportation from one state to another of adulterated food products and drugs was upheld by the Supreme Court as a constitutional exercise of legislative power. The second forbade the transportation in commerce, among the several states, of goods made in factories in which children under fourteen were employed or in which children under sixteen were employed more than eight hours a day. This act was, by a divided court, held unconstitutional because it was regarded as an attempt to regulate the methods of manufacture within a state which were a matter for state and not for national regulation. The harm to health, which resulted from the manufacture of articles made by child labor, is done in the state of manufacture. The transportation of such articles cannot, in the nature of things, be harmful. The damage done is thus due to manufacture and not to commerce.

We must, therefore, conclude that the health powers of Congress to be derived from the Commerce Clause of the Constitution relate for the most part to the act of transportation as it has been defined by the decisions. Whether this will always be the rule is open to some question. For in other directions, of which decisions under the Anti-Trust Act are examples, actions which related to manufacture rather than to transportation have been held to come under the regulating power of Congress. On the theory that they were prohibited by the Anti-Trust Act combinations both of employers and employed with regard to manufacturing and sales within a state rather than transportation have been punished as illegal.

The second great source of national power with regard to the public health is to be found in the power granted by the Constitution to Congress to "lay and collect taxes, duties, imposts, and excises, to pay the debts and provide for the common defense and general welfare of the United States."

The powers derived by Congress from this clause of the Constitution are of two kinds. They are in the first place repressive and in the second place they are powers of positively promoting the public welfare.

In the first place Congress may, in the exercise of its taxing powers, impose on any occupation or any article which is deemed to be harmful a tax of a prohibitive character, for, as the Supreme Court has on more than one occasion said, "the power to tax is the power to destroy." An instance of the exercise of the taxing power by Congress with the purpose of making impossible the production of the article taxed is the law taxing phosphorus matches. An example more recent of this method of protecting the public health is the provision in the last revenue bill imposing what amounts to a prohibitive tax on all manufacturers employing child labor.

It will be noticed that the powers relating to the public health, which may be derived from the taxing power of Congress, are in some respects broader than those which find their origin in the commerce power. Under the former, methods of manufacturing within the states may for all practical purposes be prohibited, although Congress has no direct power of prohibition. Such a method of protecting the public health naturally lends itself to matters where prohibition rather than regulation is sought. But it may per-

haps be suggested that this method of prohibition permits of the accomplishment of a good deal to which at first blush it may not seem to be adapted. Thus, what is to prevent the imposition by Congress of prohibitive taxes on all manufacturers who do not provide safety appliances for the protection of their workers or who do not secure sanitary conditions under which work may be carried on? The only answer to this question is that, while the limitations on the taxing power of Congress are few in number and rather ineffective in character, it has usually been considered that the classification of articles and persons for taxation must have some reasonable relation to the object sought. It may well be that either because such a classification would be regarded as improper or because the attempt to exercise the taxing power in this way would be regarded as a palpable evasion of the constitution and an encroachment upon the rights of the states, such laws as have been suggested would be held to be unconstitutional. The result of the ligitation, which will unquestionably follow the attempt to impose special taxes on manufacturers employing child labor, will, doubtless, throw much light on this up-to-now unsettled question.

Another example of the use by the United States government of its taxing power in the interest of the public health is to be found in the so-called Harrison Act relative to the sale of certain drugs. The purpose of this act is not so much probihition as regulation. It is an interesting example, further, of an attempt to secure through the exercise of the taxing power information as to the users of drugs which is available for use by the officers of the states charged with the enforcement of laws regulating the use and sale of drugs. It may not be said that the use of the taxing power for this purpose is clearly constitutional.

But Congress may use its taxing powers not so much to destroy as to promote directly the public welfare. That is, it may appropriate the money derived from the collection of taxes for helping the states solve their sanitary problems. It may establish, as it has established, a national public health service which may be authorized to coöperate with and assist the health authorities in the states. It may establish hospitals and sanitariums provided it secures the consent of the states in which they may be situated. It may make grants to the states in aid of their health administration and may make such grants subject to the condition that the states maintain certain standards and submit to inspection.

But while the United States government may thus exercise through its power of appropriating money a profound influence on state public health administrations and through them on the public health of the country generally, it may not of its own accord and without the consent of the states concerned step in to interfere with the sanitary work of the states.

In what has so far been said what has been borne in mind has been for the most part the power which the United States government possesses with regard to matters usually regarded as reserved by the Constitution for the states. It must, however, be remembered that the United States government has powers exclusively its own, such as its powers in the District of Columbia, the territories and the United State reservations. Here its power is unlimited by any consideration of states rights. Furthermore, in time of war its powers to raise and support armies, to provide and maintain a navy, and to declare war are construed to carry with them the power to do, even within state lines, what is necessary to protect the health of its soldiers and sailors. We have recently had notable instances of the exercise of such powers. But fortunately a state of war is not a normal condition, and while the health powers of the United States government at such a time are very important still they are infrequently exercised and consequently have little permanent influence.

A word also should be said as to the possibility of the exercise of health powers by the United States government as a result of its exercise of its treaty-making power. It is unquestionably true that Congress may exercise legislative power to carry out the provisions of a treaty which it would not possess had the treaty not been made. We have had, however, few instances of the

exercise of such powers and fewer still decisions upon their propriety. It would, therefore, be unwise, to base any large health powers upon so uncertain a foundation. But, it is well to remember that the tendencies nowadays are contripetal in character and that, with the increasing economic unity of the world, much may in the future be desirable if not necessary which in the past would have been considered almost outside of the realm of even speculation.

But whatever may be the outcome of the future, for the present it is safer to base such health powers as the United States government may possess upon either its commerce or its taxing powers, and there is little doubt that, with the increasing feeling that our national interests are growing in importance with the improvement in the means of communication, the powers of the United States government will increase to suit the changes in our national life. Insanitary conditions, as a matter of fact, are no longer of merely local concern. Epidemics are not respecters of state or even national lines. A keener realization of this fact will unquestionably have the effect of causing a broader interpretation of existing powers and may well result in constitutional amendment where such broader interpretation is not possible.

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## NORTH CAROLINA SCHOOL DENTAL CLINIC

This picture, the companion to one already presented in the June issue of the JOURNAL, page 433, shows a detail of the free dental clinics in North Carolina. This group was brought together at the Saratoga Rural School, Wilson Co., the manner of assembling the children by means of wagons and other conveyances, being shown in the other picture. Under North Carolina skies it is possible to have these clinics in the open air. The outfit is here shown although the dentist conceals his own features. The picture is especially valuable in that it conveys so excellent a portrayal of the kind of children attending these rural schools.

# A DANGEROUS TENDENCY IN PUBLIC HEALTH ADMINISTRATION.

W. S. RANKIN, M. D.,
*President.*

Presidential Address at the Conference of State and Provincial Boards of Health, June 6, at Atlantic City, N. J.

**The "dangerous tendency" is that towards a division in Federal and state health administration. Its remedy lies in planning and developing a strong, alert Federal health agency properly related in its activities to the public health interests of the states. : : : :**

A DANGEROUS tendency in public health administration is the subject of this address. My purpose in using this subject is threefold: First, to impress you with the existence of a dangerous tendency toward a division in both Federal and state public health administration; second to point out the cause and responsibility for this tendency; third, to suggest to the Conference a safe course under the circumstances.

That there is a decided tendency toward a division of public health administration among sundry agencies is shown by the following recent occurrences: First, the present attempt by the Department of Labor, through H. R. 12634, introduced by Miss Rankin, to annex the field of child and maternal hygiene, including, presumably, the large and as yet undeveloped field of eugenics. This attempted annexation of a large part of the domain of public health administration will include practically one third of the opportunities to reduce death-rates. Second, the proposed bill sponsored by the Department of the Interior, which makes use of the Federal aid extension principle to provide for school sanitation and hygiene, including the correction of physical defects. The central administration of this proposed law is properly placed under the joint direction of the Bureau of Education and the United States Public Health Service, but in the application of the law to state administration, the bill ignores the state department of health and places school sanitation and hygiene entirely under the direction of the state department of education. Under the provisions of this bill, state health authorities would lose all connection with one of the largest fields of Public Health Service, a field of service that touches in a most vital way one third of the entire population.

The tendency toward a division in public health administration is accentuated by the following unsolved problems that press for prompt solution: The first of these unsolved problems is the present irresistible general demand for public health nurses. If this demand is supplied without the active assistance of the health officials of the country, there will almost certainly be complications between those responsible for public health administration in general and that agency which, responsive to the popular demand, supplies and controls the public health nurses. A second unsolved problem that will not wait much longer is a plan for supplying the great need for an interstate agency for public health education. Such an agency would prepare and distribute, at a minimum cost, bulletin material, newspaper material, especial pamphlets, exhibits, moving picture films, and such other educational material as boards of health use in common. Here we have the same sort of need and place for service in the educational work of public health officials that existed in the news service of the country before the organization of the Associated Press.

The danger of the tendency toward division in the administration of health problems is self-evident, but, I fear, not fully appreciated. A fission, cleavage, division, two closely approximated bodies or agencies, and then follow overlapping, gapping, friction, and lost efficiency. No member of this Conference

should get the idea that a division in public health administration, beginning at and temporarily confined to Washington, does not concern him. Just as certainly as nuclear or central division is followed by mass or peripheral division, just so certainly will a division in Federal health administration be followed ultimately by a division in state health administration. Two central agencies in Washington will feel that a single peripheral or state agency through which both attempt to operate is a thing that connot serve two masters, and, therefore, each central agency will attempt to create and to do its work through its own state agency, as exemplified in H. R. 12634 for child hygiene.

I now pass to my second purpose, namely, to point out the cause of this danger. There are no vacuums in the world of necessary service. In general, when a great opportunity for rendering an important service arises, it remains but a short time unrecognized and unutilized. Either those who hold a clear title to the opportunity take advantage of it, or, through their blindness or weakness, neglect it, and others, more alert and responsive to public needs, grasp and develop it. In particular, enticing opportunities for certain forms of public health work have presented themselves; public health officials have failed to grasp them; others have. Here, then, we find the cause of the tendency toward a division of public health administration among sundry agencies.

And, now, who is responsible, the alert, ambitious, enterprising persons or agencies that recognize and appropriate great and neglected opportunities for service, or the less alert, less ambitious, less enterprising persons or agencies who are either too blind or too weak to use their opportunities? To be a little more personal, for responsibility only becomes effective when administered hypodermically, we must now endeavor to find those persons or agencies that have permitted others to occupy important fields of service that do not by clear title belong to them.

In establishing responsibility in this matter, we would naturally look to national organizations to recognize and provide for the development of effective public health administration; furthermore, for dealing with public health needs of an administrative character, we would look to national organizations composed largely of public health administration officials. There are only two national organizations composed of a homogeneous membership of public health administration officials,—one the Conference of the Surgeon-General with the State and Territorial Health Authorities, and the other the Conference of State and Provincial Health Authorities, this Conference. The charge of neglect of opportunities and thereby of losing large fields of possible service to others, it seems to me, must lie against one or the other of these two organizations.

My understanding is that the Public Health Service denies responsibility, taking the position that its functions are (1) research and demonstrations, with the publication of findings and results; and (2) the administration of certain Federal health laws. My further understanding is that the service denies responsibility for direct initiative in shaping national health policies. If this position of the service be accepted, it leaves the responsibility for assuming the initative in public health administration, Federal and state, with that organization composed of the official public health representatives of the sovereign states—with us; moreover, whether or not we accept the contention of the service that it is not responsible for the initiative in the shaping of Federal health policies, we must admit that the opportunities of state health administration officials for influencing Federal health legislation are many, many times greater than that of the officials of the service. The state health administration officials are in intimate personal and official touch with the governors, the general assemblies, the congressmen and senators of the states; they are the trusted official advisors of their states, and the representatives of state public health interest at both the state and the national capitols. Where opportunity is, there responsibility rests. I take it that no one here will contradict the statement that this Conference can do more to insure against the danger of a divided public health administration than any other agency. The

conclusion, therefore, seems justified that this organization is more largely responsible for the present tendency toward division in health administration, Federal and state, among sundry agencies than any other.

I now pass to the third purpose of my address, to wit, the treatment of the dangerous tendency that I have pointed out. In this, the Conference must take the initiative. The Conference must realize keenly its responsibilities. It must stop leaving it to George. This means a considerable change in our attitude. Heretofore our point of view has been too fractional and not enough integral,—fractional in two respects: First, we have seen and dealt with the public health problem not in its entirety, but in pieces. Look at our programs; see the special committees, as, for example, the Committee on Hookworm Disease, the Committee on Pellagra, the Committee on Poliomyelitis, the Committee on Railroad Sanitation, the Committee on Courses in Sanitary Instruction, the committee on this and the committee on that down to the Committee on the Disposal of the Dead—all very good so far as they go, but they do not go far enough. These numerous special committees serve to give a variety of interest to the Conference and to diversify its efforts, but they do not serve to give a comprehensive point of view fixed on one great objective. Second, we have been fractional in our point of view in a geographic sense. The individual members of this Conference have been too largely influenced by the needs of their own states. We have been too provincial and not enough national. The Conference has lacked cohesive strength.

In shifting our primary interest from special health problems to the general health problem, we shall find need for an entirely new type of committee—a committee charged with the responsibility for determining the general policy of this Conference and proposing the best means for developing such a policy,—in short, we shall need a steering committee. Such a committee should be composed of nine members, including the two chief officers of the Conference, and should be selected to represent different sections of the country, keeping in mind in the formation of the committee those states of the Union with strong political influences in the machinery of our national government. The members of the committee should understand that it will perhaps be necessary for the committee to meet three or four times during the year for two or three days at each session, and no one should be appointed or accept appointment on that committee who is not willing to make the necessary sacrifices for the larger objectives of this Conference. The first members of the committee should be appointed for variable periods of service, and successors appointed on their retirement. This would give a self-perpetuating committee and make for continuity and permanency of policy. The committee should have the right to appoint and enlist the advice and assistance of authorities on public health administration that are not members of this Conference.

The committee would begin its work by invoicing our assets or opportunities, and our liabilities or duties. It would make a survey of our field of service, establish our lines and corners, and make such provision for the utilization of our rightful territory as to anticipate and discourage its further invasion and annexation by others.

Without anticipating the program of a steering committee, but to emphasize the importance of its work by indicating a few of its more important lines of activity, I will mention only a few of its larger and more immediate duties.

Through this committee, the Conference would assume the initiative in planning and developing a strong, alert, Federal health agency properly related in its activities to the public health interests of the states. One of the chief reasons for the division in health administration at Washington is the fact that the present Federal health agency is not strong enough in organization and resources to occupy the entire field of public health administration, and to command that respect and confidence necessary to deter other departments of the Federal government from taking over the administration of public health problems. Time will not permit me to go into detail in pointing out the various ways by which a strong Federal health agency would

assist in the development of state health work. I must leave this inviting phase of my subject to your own thought and imagination. I am convinced myself that the individual member of this Conference can do nothing for the development of his own state health work that will count so much as in assisting actively and persistently in the development of a strong Federal health agency. The popular demand for a strong Federal health agency will not be much longer denied. Some organization will take the initiative and will exert a dominant influence in the establishment and organization of such an enlarged service. This Conference is in a more advantageous position to lead in this great work than any other organization. If we shall neglect this greatest of all our opportunities, and others, with justifiable impatience, do or attempt to do our work for us, we shall have to follow where we ought to have led, and we shall have to be content with the work of others even if it should largely ignore our official interest.

While the development of an adequate Federal health service with proper relation to the states constitutes our larger field of opportunity, and while a program directed to the realization of that larger opportunity would embrace many of the lesser problems of this Conference, the committee would find some of these other problems of such urgency and intrinsic importance that their solution should not have to wait on the attainment of the larger aim of the Conference.

One of these problems that seems to be pressing for early solution is the establishment of an interstate agency to prepare and supply standard educational material to state boards of health, including bulletin material, press material, exhibits of all kinds, and films, and all of such excellence in workmanship as to command the right of way with all boards of health. It is to be hoped that the attention which Doctor Bolduan brought to bear on this matter at the Conference of the Surgeon-General with the State and Territorial Health Authorities this week in Washington, will result in something definite that will completely meet the needs of the states. The steering committee should proceed at once to ascertain from the various state boards of health the funds they are expending in educational work, and the possibility of standard forms and material. It must be admitted that at least 80 per cent of the public health problems of the United States and Canada are common to all the states and provinces, and that only about 20 per cent of the problems, like malaria and hookworm, are of regional interest. It must be admitted, further, that the preparation independently by thirty, forty, or fifty state or provincial health agencies of educational material dealing with these common problems is a waste, a great waste of both human energy and money,—a waste that this Conference cannot justify. We spend much time back home preaching coöperation; let's practice a little.

Another problem of such urgency that it calls for immediate attention, grows out of the popular and insistent demand for public health nurses. This demand is being made upon both the official health agencies of the country and upon the Red Cross. Both agencies are responding to a limited extent, but without any coöperative understanding. It is essential to the best interests of both the American Red Cross and of the official health agencies of the country that a plan of coöperation for supplying and supervising public health nurses shall be developed at the earliest convenient date. Without such an arrangement, overlapping of work, unrecognized opportunities, misunderstandings, waste in both money and effort are sure to occur. The state health officials, if they fail to recognize the significance of a strong American Red Cross with a well-developed peace program and what it may mean to the future health work of this country, will have neglected one of the greatest opportunities that will ever come to them for a strong alliance, mutually helpful and far-reaching for both agencies.

Our program this year has been prepared with these larger objectives of the Conference in mind. The address by Doctor Goodnow, perhaps the most eminent authority on constitutional law in this country, will furnish the necessary information with respect to the constitutional provisions and limitations that a steering committee would need in developing

a plan of Federal health work acceptable to this Conference. The address by Assistant Surgeon-General McLaughlin will supplement the address by Doctor Goodnow and would assist a steering committee in arranging for a proper relation between Federal and state health activities. The address by Doctor Farrand, president of the American Red Cross, will bring out the mutual interest existing between the American Red Cross and the official health agencies of the country, and indicate the general principles of coöperation by which the two agencies may assist each other in their closely related fields of service.

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# THE PRESENCE OF FECAL AND NON-FECAL TYPES OF THE COLON BACILLUS IN VARIOUS TYPES OF WATER.

WILLIAM ROYAL STOKES, M. D., Sc. D.,

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**An investigation of the origin of members of the colon-aërogenes group. "High ratio" aërogenes come probably from grains or cereals, while "low ratio" colon betoken probable human contamination.**

SINCE the work of Theobald Smith (1) in 1893 on the detection of the colon bacillus in water by means of the fermentation tube, the isolation of this organism in drinking water has been used as an important guide for the sanitarian. The work of Rogers, Clark, Lubs, Levine, Winslow, Klinger and others has recently demonstrated that the original *B. coli* can now be separated into two groups, namely, the *B. coli* and the *B. aërogenes* group. The *B. coli* type gives a low carbon-dioxide ratio, a positive methyl red test for acidulation, and a negative Voges-Proskauer reaction, while the *B. aërogenes* type shows a high carbon-dioxide ratio, a negative methyl red test, and a positive Voges-Proskauer reaction. The former type is more frequent in the feces of man and many animals, and the latter is much more abundant on grains and cereals.

Winslow and Cohen (2) have collected the results of the various authors who have described the relative proportion of these two types in feces, sewage, raw, stored, and filtered water, grains, and soil, and they show that the low and high ratio types were present in the following percentages in these various materials:

In the feces of men, horses, cows and other animals a low ratio type was present in 92 per cent of cases and a high ratio type in 8 per cent of cases. In sewage a low ratio type was found in 77 per cent and a high ratio type in 23 per cent. In raw water a low ratio type was found in 75 per cent and a high ratio type in 25 per cent of cases. In stored water a low ratio type was found in 95 per cent and a high ratio type in 5 per cent of cases. In filtered water the low ratio type was found in 97 per cent of cases and the high ratio type in 3 per cent of instances. On grains the low ratio type was found in 9 per cent of cases and the high ratio type in 91 per cent of cases, and from soil the low ratio type was found in 28 per cent of cases and the high ratio type in 72 per cent of cases. The presence of a high percentage of the high ratio type in sewage and raw water can be accounted for by the fact that the washings from grain and soil are often swept into the water of a river as well as the washings from the feces of

men and animals, but it is difficult to account for the very low percentage of a high ratio type of organisms in stored and filtered waters.

The above mentioned observers have also made an investigation "to add to the scanty evidence in regard to the relative prevalence of the *B. coli*, and the *B. aërogenes* types in waters of known sanitary quality in order to throw light on the significance to be attached to their presence.

Their samples were collected from sources known to be polluted, sources unpolluted beyond a reasonable doubt, and samples of stored raw water used for municipal supplies, and of high sanitary quality. In a study of two hundred and fifty-five strains isolated from these sources they came to the conclusion that there was no connection between the type of organisms and the corresponding source.

Since they state that "the final proof or disproof of any such connection must come from extended study in as many different parts of the country as possible," I have thought it worth while to describe some observations made in Baltimore, and other parts of Maryland.

The Baltimore water supply is obtained from a rather small river running through a densely populated adjacent county, and this river is subjected to many pollutions from farms, villages and small towns. The water, however, is impounded by a large dam and then subjected to sedimentation by coagulation, filtration, and final chlorination.

During the present year we have made type determinations on one hundred and sixty-one specimens of lactose fermenting organisms, and the following table will show the result of these determinations. This table is based upon the group reactions in *Standard Methods of Water Analysis*, A. P. H. A., 1907, page 108. We were unable to differentiate between the *B. aërogenes* of fecal and non-fecal origin since we were unable to obtain any adonite. The unknown organisms mentioned did not absolutely conform to any of the groups described in *Standard Methods*.

The results of our type determinations, however, can be broadly grouped into three classes, namely, the low ratio colon group, the high ratio aërogenes group, and the gelatin liquefying cloacæ group. The unknown types under these three subdivisions were methyl red positive gelatin negative, methyl red negative gelatin negative and methyl red negative gelatin positive, positive meaning the liquefaction of gelatin. We, therefore, found low ratio methyl red positive organisms in 51 per cent of cases, high ratio methyl red negative in 16.7 per cent of cases and high ratio methyl red negative but gelatin liquefying organisms in 28.6 per cent of instances. These groups correspond respectively to the colon type, the aërogenes type and the cloacæ type.

TABLE SHOWING TYPES ISOLATED FROM FILTERED BALTIMORE WATER.

| | |
|---|---|
| Colon, fecal type | 83 or 51.5% |
| Colon, unknown type | 5 or 3.1% |
| Aërogenes, fecal type | 5 or 3.1% |
| Aërogenes, unknown type | 22 or 13.6% |
| Cloacæ type | 23 or 14.3% |
| Unknown type | 23 or 14.3% |
| Total | 161 |

An attempt has also been made to ascertain as far as possible the various sources of low ratio, high ratio, and gas-producing, gelatin liquefying *B. cloacæ* organisms in drinking water from various sources throughout the state of Maryland, including chlorine treated and untreated water, raw and filtered waters, spring water and well water. Specimens from milk, oysters, sewage, human and bovine feces and urine, cereals and grains were also examined, and the results are expressed in the following table:

TABLE I.

SOURCES AND RELATIVE FREQUENCY OF THE THREE TYPES OF ORGANISMS FOUND IN A STUDY OF 1,145 CULTURES FROM EIGHTEEN DIFFERENT SOURCES.

| Source. | No. of samples | No. of cultures | High ratio | Low ratio | B. cloacæ |
|---|---|---|---|---|---|
| Water | 444 | 528 | 294 | 192 | 42 |
| Milk | 271 | 271 | 129 | 109 | 33 |
| Oysters | 54 | 54 | 23 | 26 | 5 |
| Sewage | 23 | 31 | 12 | 18 | 1 |
| Stools, human | 11 | 141 | 0 | 118 | 23 |
| Stools, bovine | 1 | 15 | 2 | 13 | 0 |
| Urines, human | 2 | 28 | 1 | 24 | 3 |
| Corn meal | 1 | 0 | 0 | 0 | 0 |
| Grape nuts | 1 | 0 | 0 | 0 | 0 |
| Post toasties | 1 | 0 | 0 | 0 | 0 |
| Corn flakes | 1 | 7 | 3 | 4 | 0 |
| Puffed wheat | 1 | 0 | 0 | 0 | 0 |
| Quaker oats | 1 | 15 | 3 | 11 | 1 |
| Rye | 2 | 17 | 15 | 2 | 0 |
| Corn | 2 | 18 | 18 | 0 | 0 |
| Wheat | 1 | 6 | 1 | 2 | 3 |
| Barley | 1 | 8 | 8 | 0 | 0 |
| Oats | 1 | 6 | 5 | 1 | 0 |

As will be seen in Table I, more than half, or 55.6 per cent, of the members of the colon-aërogenes group isolated from water belonged to the high ratio group; 43.9 per cent of this group were obtained from the cultures isolated from milk, and 42.5 per cent from oysters. In sewage the high ratio group was present in 38.7 per cent; in feces (human and bovine) and urines in only 1.6 per cent; in cereals in 26.18 per cent and in the various grains in 85.4 per cent. It is interesting to note that there were no high ratio organisms in the one hundred and forty-one cultures obtained from human stools.

Table II shows the relative proportion of the three groups of organisms in raw, filtered and chlorine treated waters obtained from one hundred and twenty-two wells, twenty-seven springs, and the public water supplies of eleven towns in Maryland. There is nothing striking in this table excepting that it shows that filtered and treated waters contain a somewhat higher percentage of low ratio organisms than raw water. Of greater interest is the fact only one low ratio organism was found in fourteen samples of water from artesian wells containing members of the colon-aërogenes group. Twelve of the samples contained high ratio organisms and one the *B. cloacæ* type.

TABLE II.

| | High ratio | Low ratio | B. cloacæ |
|---|---|---|---|
| Raw waters | 116 | 62 | 5 |
| Filtered waters | 12 | 38 | 3 |
| Waters treated with chlorine or hypochlorite | 60 | 60 | 6 |

Rogers (3) has shown that the *B. aërogenes* is more resistant than the *B. coli*, and that its percentage as compared to that of *B. coli* gradually increased during long storage. This same percentage increases in polluted water as the specimens are obtained further and further from the source of pollution, and the preponderance of *B. aërogenes* over *B. coli*, or an opposite condition might be considered an indication of immediate or remote pollution.

In the routine examination of drinking water, a specimen is frequently met with which contains colon bacilli, as tested by the present Standard Methods of Water Analysis, but which on chemical examination shows no evidence of intestinal pollution, and a sanitary survey of its source shows no reasonable cause to suspect fecal contamination. In the studies already cited it was found that more than 50 per cent of the colon-aërogenes group isolated from water belonged to the high ratio type, and it was to determine whether or not it would be practical to consider waters containing this type as free from pollution that the following tests were made.

Ten colonies from Endo plates were fished from each of 59 samples of raw water and 38 samples contained but one

type of organism; 24 of these contained only high ratio organisms; 13 contained only low ratio types, and the *B. cloacæ* type was found in one. Plates from the 21 remaining samples contained two or more types of these bacteria, *i.e.*, each sample contained both high ratio and low ratio types, with an occasional *B. cloacæ*.

Dr. H. W. Stoner, who made these tests of state waters, had intended to compare the results with the sanitary survey made in connection with each sample, but his untimely death interrupted this part of the investigation. It is significant, however, that a larger percentage of wells and springs contain a preponderance of either low or high ratio groups, while a smaller number contain a mixture of both groups. It would have been interesting to have known whether the sanitary survey showed pollution from human or animal feces in the low ratio and mixed groups, and only soil pollution from the high ratio group. Further work in this matter should be carried out.

## Summary and Conclusions.

The colon-aërogenes group of bacteria has quite a wide distribution in nature.

A study of the sources of the various types shows that the one known as the high ratio is constantly present on grains, and cereals and only occasionally found in stools and urines. On the other hand, the low ratio type is constantly present in stools and urines but is rarely found on grains and cereals. The *B. cloacæ* type is less frequently found, and is obtained from both these sources in about equal proportion. It therefore seems that grains may be regarded as the principal source of the high ratio type and stools and urines of the low ratio type.

In the bacteriological examination of drinking water it would not be safe to assume that the water was free from intestinal pollution if but two or three colonies were studied from each specimen. However, if twenty to twenty-five colonies be picked from each sample, and all are found to be of the high ratio type, it might be safe to regard the water as free from fecal contamination provided a chemical examination and sanitary survey gave no evidence of pollution. Of course, the isolation of even one low ratio type from a sample would indicate intestinal contamination. It would be impractical to examine twenty or twenty-five cultures from every sample of water in general routine work where a number of samples are examined, but the method can be applied to special samples and to those that, from a sanitary survey and chemical tests, show no evidence of pollution.

## Literature.

1. Wilder Quarter-Century Book, 1893, p. 187.
2. Jour. Infect. Dis., 1918, 23, p. 90.
3. Jour. of Bact., 1918, 3, p. 312.

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The **National Municipal Review** (Philadelphia: National Municipal League) has become a monthly with its May issue. This change has been in response to a widespread demand on account of the increasing importance of the magazine. Its position as the organ of a live association assures to it freedom of expression and an opportunity for advanced and even prophetic thought. It numbers among its contributors the foremost municipal specialists in the country, men interested in the dissemination of good principles in municipal management and men, indeed, who have been foremost in inaugurating the reforms that are directed at honest and efficient city government.

**English Birth and Death Rates.**—During the last quarter of 1918, the death rate in England exceeded the birth rate for the first time in the history of civil registration in that country. When the facts became known, the War Office released 700 physicians from the army in one week. The death rate was greatly increased because of the large number of influenza deaths. The number of deaths from this cause was 98,998, or 41 per cent of the total deaths, for the quarter. It is believed that the lack of physicians in controlling the disease materially aided in swelling the number of deaths.—*Boston Medical and Surgical Journal*, May 8, 1919. (*M. P. H.*)

# MEATS—THE PRESENT ASPECT OF SUPPLY, CONSERVATION AND DEVELOPMENT.

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*Medical Director, Swift & Company, Chicago, Ill.*

Read before the Food and Drugs Section, American Public Health Association, December 12, 1918, at Chicago, Ill.

**Eight million food animals die each year from disease and exposure on ranches and farms. A million more are condemned in the abattoirs. This waste calls for preventive work, which is under way, and for conservation through utilizing better the coarser meats and the fats. Here is advice for wasteful Americans, who usually take only the best.**

IT is not necessary to tell an American audience today that food helped win the war. Almost from the very first day of the conflict the allied countries depended very largely on the United States for their indispensable food, wheat, meat and fats, for their armies as well as for the civilian population. Without American food the allied armies could not have been kept in the field as long as they were and allied labor could not have produced the needed war material.

Now that the treaty has been signed and the world is beginning to learn the true state of affairs in the countries of the central powers, it is becoming evident that lack of food contributed largely to the collapse of the enemy.

From olden times to the present day meat in some form has been an important part of army rations. Officers state that our Filipino troops have become finer and stronger physically since they were put on full United States army meat rations, and the same is true of the civil population that changed from vegetarianism to meat-eating.

More than one half of the people of the world eat little meat. The English-speaking peoples are the greatest meat-eaters. Asiatics, with the exception of the Siberians, eat very little meat, although consumption of meat in Japan is gradually increasing. The per capita meat consumption of a country has been referred to as a good index of its prosperity. Thus, Australia, the richest per capita country in the world, is also the greatest meat consumer. It has been estimated that 50,000,000 of the world's population eat the bulk of the meat produced and the per capita consumption has been estimated at 93.3 pounds dressed weight of beef, mutton and pork, including the fats and other products.

The per capita consumption of meat for the leading countries has been estimated by the United States Department of Agriculture from available sources as follows:

| | |
|---|---|
| Australia | 262 pounds |
| New Zealand | 213 pounds |
| United States | 171 pounds |
| Argentina | 140 pounds |
| Canada | 137 pounds |
| Cuba | 124 pounds |
| United Kingdom | 120 pounds |
| Germany | 116 pounds |
| France | 79 pounds |
| Denmark | 76 pounds |
| Switzerland | 75 pounds |
| Belgium | 70 pounds |
| Netherlands | 70 pounds |
| Greece | 68 pounds |
| Austria Hungary | 64 pounds |
| Norway | 62 pounds |
| Sweden | 62 pounds |
| Russian Poland | 62 pounds |
| Russia (Poland out) | 50 pounds |
| Spain | 49 pounds |

| | |
|---|---|
| Italy | 47 pounds |
| Portugal | 44 pounds |

All the meat-eating countries are also meat producers, but only few of them produce more than their consumption, namely, the United States, Argentina, Australia, Canada, Denmark (bacon only), Mexico (under normal conditions), New Zealand and Uruguay.

The surplus of these countries is exported to those countries that do not produce enough for their own use. The former are termed surplus countries, and the latter deficiency countries.

Just prior to the war the general condition of the world's meat production was about as follows: Cattle production was stationary, that is, they were not increasing in number, sheep were materially decreasing and swine were increasing. This can be more strikingly illustrated when the number of food animals is computed on the basis of per capita of population. It is found that prior to the war cattle and sheep had not kept pace with the population, although swine had gained slightly.

Then the great catastrophe of August, 1914, was forced upon the world, and it was but natural that the number of meat animals should still further decrease, not only in the belligerent countries but also in some of the contiguous countries. However these losses have been more than offset by gains in other countries, so that both cattle and swine show a gain in numbers during the war. Only sheep have decreased. There has been a marked increase in the slaughter of food animals in all the belligerent countries, not only to meet the demands of the armies, but also because of lack of food for the animals.

According to the Department of Agriculture of France, there has been a reduction of meat animals from December, 1913, to July, 1915, in the territory unoccupied by the enemy amounting to 17 per cent in cattle, 16.8 per cent in sheep, 22.1 per cent in swine and 68 per cent in goats. The British Board of Agriculture estimates that during the year ending with June, 1915, there has been a slight decrease in the United Kingdom of cattle and swine.

All the belligerent European countries are meat deficiency countries, and when the war cut their supply they had to turn to the United States as their only hope to fill the ever-increasing needs for their armies and people at home.

The United States was for more than a quarter of a century the abattoir of the world and furnished the lion's share of the world's meat exports, but by 1914 it had ceased to be an exporter of fresh, chilled and frozen beef; in fact, it had begun to import fresh beef. It was still the greatest exporter of pork and pork products, furnishing three quarters of the total of the world's exports of those meats. Practically the total exports of mutton came from the Australasian colonies and Argentina.

Actuated by the stimulus of an increasing demand at enhanced prices, the American meat industry set itself to increase the supply of food animals, and when we entered the war in 1917 it became a duty and a privilege for the American stockman and the American packer to supply the needs of our government and of the Allies. The way they responded will ever remain one of the bright chapters in the history of the part the United States played in the war. A steady stream of cattle, sheep and hogs poured into the great packing centers and just as steadily did the flow of meat keep going across the Atlantic and into the great camps of this country, without hitch or interruption.

Exports of meat and meat products from this country have increased from

1,142,000,000 pounds in 1914 to 2,005,000,000 in 1917, almost 76 per cent.

When it is remembered that this task was accomplished with labor the scarcest in history and greatly reduced, unsettled transportation facilities, it becomes apparent that the American farmer, stockman and packer have rendered a great service to humanity.

Not only have meat exports increased but the actual number of cattle and hogs on the farms and ranches in this country have also increased. From January 1, 1915, to January 1, 1918, cattle have increased from 58,000,000 to 67,000,000, and hogs have increased from 65,000,000 to 71,000,000. Sheep have decreased from 50,000,000 to 49,000,000.

The price of meat has, of course, increased according to the law of supply and demand and the cost of feed, but not to as great an extent as other staples and war materials. While the price of live stock had increased 39.9 per cent from 1915 to 1917, the wholesale price of meat had only increased 20.7 per cent during the same period. This was made possible by the scientific and economic utilization of by-products by the great packing houses and the increase in value of these by-products.

Now that the war is over, all are speculating and prophesying as to what effect peace will have on the economic condition of the world. A great many divergent opinions have been expressed, but every one agrees on one thing, and that is, that for some time to come the United States will have to feed the greater part of Europe, particularly with pork and fats. The meat-hungry population, especially labor, will need meat in order that the great task of rebuilding the devastated countries can be accomplished, and what is equally important, meat and other foods are needed to stay the ravages of disease, especially tuberculosis, which, according to reports, began to appear in some of the belligerent countries during the latter part of the war.

Examination of live stock conditions in other producing countries seems to indicate that the United States will be depended on to produce a large share of the meat of the world.

The ways and means necessary to maintain the supply of meats in the United States adequately to meet the reasonably expected demands, may be divided into three classes:

1. Measures to maintain and increase the production of food animals.

2. Prevention of loss of food animals and of meats.

3. Conservation of meats and meat products.

As stated before, cattle and hogs have materially increased in number since the beginning of the war. In addition, the hogs marketed in 1918 were of greater average weight, showing that they were fed longer before being sent to market.

Fortunately hogs can be produced more rapidly than any other food animal, two litters per year being possible for the average sow. The hog is easily the most economical animal to feed.

The hog is also the most important animal from a dietetic standpoint, especially in a crisis like this, because of its great yield of fats, and this is confirmed by the fact that half of the export of pork products in the early part of the war was made up of lard.

The necessity for increasing the number of sheep is due to their wool as well as meat.

A great deal has been done since our entry in the war to encourage the raising of food animals.

The work may be said to have begun when the Secretary of Agriculture, on April 4, 1917, called a conference of agricultural representatives and officials of

the states, presidents of land-grant colleges and others for the purpose of discussing the food emergency. The first conference held in St. Louis was followed by a second in Berkeley. The whole food situation was thoroughly discussed and a campaign outlined, the essential features of which were incorporated in the Food Production and Food Control Acts, passed by Congress August 10, 1917, followed by the creation of the office of Food Administrator. The Food Production Act carried an appropriation of more than $11,000,000, a part of which was to be used for a campaign to increase live stock, prevent animal diseases and to urge the conservation of meat, the work to be under the control of the Department of Agriculture.

A strong educational campaign by means of literature, lectures and demonstrations was soon inaugurated in coöperation with state agricultural bodies, colleges, the agricultural press, live stock associations and other interested groups. Trained experts were sent to the various states to teach economical live stock production as well as raising of feedstuffs.

The peculiar adaptabilities of the various sections of the country for stock raising were studied and advantage taken of them. Stock were removed from sections where feed was scarce to where it was plentiful, and markets were provided.

The hygiene and sanitation of the farm and ranch are being taught the individual farmer and farmers' organizations.

Unquestionably all these undertakings and many others that have been carried on have been largely instrumental in bringing about the beneficial results accomplished.

Next in importance to live stock production is the prevention of losses of meats. Meats are lost in two ways: By the death of animals from disease and exposure on the farms and ranches and by the condemnation of carcasses and parts by the inspectors of the Federal Department of Agriculture.

It has been estimated that from 8,000,000 to 10,000,000 good animals die annually on the farms and ranches from disease and exposure. According to the reports of the Chief of the Bureau of Animal Industry, under whose control meat inspection is conducted, condemnations for disease of whole carcasses and parts of carcasses on post-mortem examination for the four years ending with 1917 were as follows: above 1,000,000 carcasses, and nearly 3,000,000 parts of carcasses.

It can readily be seen that these enormous losses constitute a serious drain on the meat supply and call for energetic repression measures.

Of course, some food animals will always die of disease or become diseased sufficiently to be condemned, but when we study these diseases we find that among animals as well as among people the diseases that cause the greatest mortality are largely preventable, namely, tuberculosis, hog cholera, contagious abortion and Texas fever.

Tuberculosis and hog cholera were the cause of approximately 80 per cent of the total condemnations, the remaining 20 per cent being divided among forty other causes. The inference afforded by these figures clearly is that tuberculosis and hog cholera are the two important diseases producing the greatest loss of meats through condemnation. They also cause a great loss in cattle and hogs by death on farms and ranches. Tuberculosis also causes indirect losses in cattle by diminishing fecundity, curtailing the milk supply and disturbing nutrition, thereby bringing about a decrease in weight.

The Federal Department of Agriculture long ago recognized the necessity of eradicating these diseases and instituted

effective measures through the Bureau of Animal Industry with gratifying results, notably in the reduction of 30 per cent in hog cholera since 1914.

Since the war the scope of this work has been materially broadened. Congress expressed its recognition of the importance of anti-tuberculosis work by appropriating $500,000 for the fiscal year (1918).

Great advances have been made in tick eradication and much territory previously closed to cattle raising may be released within a few years.

The primary function of meat inspection is, of course, to search for those meats that are not fit for human food and keep them from the market by destruction. That this is effectively accomplished can be seen from the great amount of meats that is annually condemned. It also constitutes an effective medium for the discovery of areas throughout the country containing diseased herds, thereby pointing the way for preventive work.

This information, however, is limited by the fact that the Federal Meat Inspection Law only applies to these establishments that engage in interstate meat business, which at present produce only slightly over 60 per cent of the meat of this country. The remaining 40 per cent is produced in establishments not conducting interstate business, which are, therefore, without federal inspection. Some states and municipalities have local meat inspection laws, but in many cases these are either inadequate or not well administered.

Unquestionably the animals slaughtered in these non-inspected establishments are affected in the same way as those killed under Federal Inspection. This state of affairs ought not to be allowed to continue, for two reasons: First, because the consumption of the non-inspected meats constitutes a menace to public health; and, second, because these non-inspected meats do not permit an opportunity to institute preventive measures. It is, therefore, imperative that laws, state and municipal, should be passed for the adequate inspection of all meats produced in establishments at present operating without inspection.

There is another way by which the problem may be attacked, especially with reference to tuberculosis in cattle, and that is by more thorough inspection and supervision of milk production than is done at present.

In the light of present-day opinion the only serious danger of infecting people with bovine tuberculosis is through milk. Nevertheless, no uniform laws for inspection of dairy herds and dairy products exist in this country. If uniform laws, state or municipal, or both, or possibly Federal, existed, requiring the testing of dairy herds for tuberculosis and the sanitary inspection of dairies, not only would the danger of bovine tuberculosis be materially lessened, but by discovering and eradicating the disease in dairy cows, 10 per cent of which are at present affected, it would be greatly lessened among beef cattle and hogs as well, thereby materially increasing the meat supply.

So far we have discussed possible ways and means for increasing meat production, and while that, of course, is the most important step in maintaining the supply, much may be accomplished by the consumer to conserve available meats.

We are all familiar with the excellent work of the Food Administrator and the splendid way the country responded to his appeal for reducing meat-eating when necessary.

It is not exaggerating to say that the American people have been too discriminating and often wasteful in the selection of their meats. Partly because of their palatability, and partly because

they permit of quick preparation the more expensive and limited cuts are greatly favored. The so-called cheaper cuts are rich in nutritive and tissue-building elements, and can be made just as palatable as the expensive portions, and ought to be more extensively used.

Another class of meat-foods not fully utilized in this country are the edible organs, although in Europe they have always been prepared and consumed in a variety of ways. The spleen is practically not eaten in this country, except in a few isolated foreign-born neighborhoods in some of the large cities, and there is no reason why it should not be.

According to recent work on the vitamine hypothesis all glandular organs are rich in vitamines, and who knows but that an occasional addition of organs such as the spleen to our dietary might be of great benefit. At any rate, everything points to the spleen as wholesome food of considerable nutritive value, and as the average spleen weighs about two pounds, its use would add many millions of pounds of meat food annually to our supply.

No class of meat-foods is more important than the fats, and their shortage has been most keenly felt during the war.

Immediately upon our entry into the war the Bureau of Animal Industry broadened the inspection regulations so as to save all possible animal fats for food, and the great packing houses improved and perfected their methods of manufacture in the same direction.

The vitamine hypothesis looks upon fats as something more than stored up heat and energy, and it has endowed them with substances, as yet unidentified, that promote growth and enable the tissues to recover from injury.

At first the class of vitamines called "fat-soluble A" was believed to be found in milk-fat and yolk of egg only, but now that they are known to exist also in beef and hog fat all these fats can be used interchangeably, thereby avoiding a scarcity in any one of them. The broader use of oleomargarines prepared with animal fats would tend to equalize the supply of both butter and oleomargarine.

Naturally, in a realization of a possible shortage of animal fats a search for substitutes was begun, and logically the vegetable fats suggested themselves.

The recent work of Holmes of the Department of Agriculture establishes the digestibility of most of the vegetable oils, thereby opening up a rich supply of fats.

So far as is known at present all of the vegetable oils do not contain vitamines. More experimental work is needed on this most interesting hypothesis.

At no time in the history of the development of the food industries have the advantages of cold storage been so forcibly brought out as during the war. Without cold storage plants, meat and other foods could not have been prepared in such enormous quantities in seasons of plenty and delivered fresh and wholesome to our armies and the Allies abroad.

Now that the war clouds have been dispersed and peace is here, far-sighted men are beginning to take stock of the benefits that can be expected as a result of our victory.

The most able students of the problem agree that great and lasting benefits will result to the human race, even though dearly bought.

Not the least among them will be a broader knowledge of foods, both by the public at large as well as the scientific world.

The war has taught us to get along with less food than we used heretofore, how to substitute one class for another in time of stringency, and how to conserve what we have.

# REMARKS ON THE CONDUCT OF CENTRAL AND LOCAL GOVERNMENT AUTHORITIES IN ENGLAND

SIR ARTHUR NEWSHOLME.

Discussion before the Conference of State and Provincial Boards of Health, June 7, 1919, at Atlantic City, N. J.

**In England a link has always existed between the central and the local health administrative bodies. This has been helpful in solving problems, standardizing methods, and stimulating local effort throughout the Kingdom.**

I HAVE difficulty in accepting the flattering invitation to address you without previous notice because the subject of President Goodnow's lecture is complicated and difficult, and it would be presumptuous, if not actually indecorous, for me to attempt to say anything from an American standpoint. There is, however, an English standpoint on the same subject, and if English experience can be helpful, I am very glad to give you the benefit of that experience. One has, in the first instance, to bear in mind the difference between a "tight little island" like ours and a continent like America.

One difference strikes me, and it is this: From the earliest days of public health legislation and administration in England, there was the link between the central and the local organization. The earlier public health acts give the central authority the power of describing the duties of the local medical officer of health and that power has been utilized to relate and to prevent a lack of coöperation between the local and the central office. Every medical officer of health had, year by year, to write an annual report and that has had to be presented to the central authority. In the central bureau it has been conned and criticized, not so much as it ought to have been, perhaps; but on the strength of that report, letters have been sent to the local authority pointing out respects in which their administration has been weak, and suggesting this or that development or extension of activity, thereby gradually raising the standard of local health administration.

Not only does that apply to the annual reports, but we have also the central registration office, by means of which the local vital statistics can be checked; and in which further statistics for the same locality are prepared, so that the local can be checked against central information.

Furthermore, we have introduced in the last eight years a system under which the statement of the number of cases of each infectious disease notified in every locality is required to be sent by the medical officer of health on each Saturday to the central government office. On the following Wednesday, that statement has been summarized and printed for every one of the 1,800 districts into which England and Wales is divided; and this statement is circulated to every one of the 1,800 medical officers of health, so that every one of them knows whether smallpox, scarlet fever or diphtheria or any other notifiable disease is present in any other district in England or Wales. Those are some of the ways in which the central authority has been able to advance local public health administration.

They are not the only ways. The central authority from the beginning has been advised by men, my predecessors, who were statesmen in public health, including especially Sir John Simon, the founder of systematic public health administration in England, and his classical reports, I think, did more to advance public health than any reports which have been issued in any country in the world's history. He gathered around him a staff of medical inspectors which has been increased as time went on, and these inspectors have gone down to any locality where an epidemic has threatened or occurred to assist the local medical officer of health. In other areas the medical inspector of the central authority has gone down where administration has been lax, or where any special defect existed and

the printed and other reports following after these inspections have meant the castigation of local authorities not doing their duty or the praise of those doing well, and so gradually the standard of public health administration has been raised.

The central authority has not only thus acted as supervisor, but also as central authority for research. Some of the most important research work has been done by special government grants, which in recent years, under the national insurance act, have been greatly increased.

Another way in which England's position is relatively favorable for a proper relation between central and local authorities is this: Local authorities find it difficult or almost impossible to borrow large sums of money for sewerage, water supplies, housing, or even for a town hall, without the consent of the central government. The central government holds an inquiry before giving its consent, and its consent is subject to its belief in the justifiability of the expenditure proposed to be incurred, and to ascertaining that the local authority's total loans do not already exceed its ratable value. The applications are not frequently refused, but the power of refusal has been found to be of extreme value in dealing with recalcitrant and backward authorities. Sometimes the loan has been held up by the central authority, which can say in substance, "You will get the loan when you have mended your ways and brought your sanitary administration up to a fair level." The fact that the central authority is banker has undoubtedly had an important influence. I do not suggest that the Federal Government of the United States should be the banker for the states; I am only stating what is done in a compact country such as England.

Lately there has been an expansion of mandatory power. If the local authority refused to provide an adequate water supply or sewage disposal system, it has been practicable for many years for the central government to go in and build sewers or construct reservoirs, etc. They did it once or twice, but got into such difficulties that the experiment was not repeated. The general impression has been that these mandatory powers were not practicable and they have remained in abeyance. Recently, however, there has been a revival of them in connection with the control of venereal diseases.

The Royal Commission, of which I was a member, reported during the first year of the war and, as a result of this report and the action subsequently taken by the Central Board of which I was the medical advisor, it was made obligatory upon all the large local authorities (county borough councils and county councils) to provide free diagnosis and treatment for all patients coming to them who were suffering from venereal disease, whether they belonged in their area or not; and this free treatment is now given to any applicant in England or Wales whether he is a millionaire or pauper. This was made compulsory on local authorities and I have not heard of one authority which has refused to carry it out. Some are doing it better than others, of course. I don't know what would happen if any of the local authorities did refuse to do it. Probably a voluntary committee would be appointed and given the money to do the work instead of the local authority. The central government provides three-fourths of the total cost of the clinics, the other fourth coming from the local funds, and in such a case as that, the central government probably would pay the whole of the cost instead of trying to coerce the local authorities.

That is an interesting excursion into mandatory powers. My own view is that so far as the large local authorities are concerned, there should be little interference with them from the central bureau; certainly not by way of limitation of activities. The only interference should be in the way of stimulating them to do still better. Lately there has been a tendency to decline to give consent to local experimental extensions of public health administration. Such refusals in my opinion should cease. Local experimentation should be encouraged by every possible means and should receive support; and the best support, as President Goodnow has so well told us, is undoubtedly financial support. With financial support we are going ahead very effectively in England in new develop-

ments. Of course there is danger of too much centralization when central financial aid is given to local authorities. The grants given to local authorities depend, perhaps, too much on toeing a certain line, but in public health matters, particularly in child welfare and the promotion of anti-tuberculosis campaigns, the practice of giving, as Dr. Goodnow explains to you, pound for pound, has spread very extensively. I cannot give you the sums on education, venereal disease and on tuberculosis—which are large—but so far as the child welfare and maternity activities are concerned, I may mention the figures, which may appear small to you, but remember the population of England. The special grants for child welfare work before the war amounted to some £22,000. In the last year of the war they amounted to more than one-quarter million sterling pounds, and that did not represent half the total local expenditure because a great deal of the local expenditures comes outside the particular items for which grants are payable.

At any rate, I am convinced, and I am glad to have the authority of the reader of the address this morning, in support, that the progress of the future will be on the lines of inducing the local authorities to do more than they have done in the past by aiding their finances, and I think that is the most hopeful line of development.

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# FUTURE COÖPERATION BETWEEN THE AMERICAN RED CROSS AND PUBLIC HEALTH AGENCIES.

LIVINGSTON FARRAND, M. D., LL. D.

*President, American Red Cross, Washington, D. C.*

Address before the Conference of State and Provincial Boards of Health, June 6 and 7, 1919, at Atlantic City, N. J.

**Since the cessation of hostilities in Europe health officers have been asking "What is the Red Cross going to do in Public Health?" Dr. Farrand here assures the public health profession that the Red Cross proposes to be a coöperative agency and not unless circumstances seem to demand it, an operative one. : : : : : : : :**

THE PRESIDENT: The next paper on the program is the address by Dr. Farrand, as you all know, recently elected President of the American Red Cross. No words of introduction are necessary. We all know Dr. Farrand and love him. I present Dr. Farrand.

I FOUND myself in a good deal of embarrassment when I was asked to come here to discuss the future of the American Red Cross, and particularly its work in public health and its coördination with the various public health administrators and activities of the country. I was embarrassed for the reason that the Red Cross is, of course, at this moment in process of working out these plans, and what it is looking for is advice, not for an opportunity to state certain things.

What I would much prefer to do here this morning would be to ask advice from you as to what the Red Cross may safely and legitimately do in the public health campaign and the public health activities of the United States. The chief situation confronting the Red Cross is this: There has been built up during the war, by reason of the war, but existing after the war, an enormous voluntary organization, an organization of many million people attached to a name and a symbol, the Red Cross, organized for a specific purpose or rather a variety of specialized purposes during the war and now looking out to see how that energy which has been accumulated can be directed toward useful ends in the future.

It was expected, I think, by nearly everybody who had any responsibility with the Red Cross that after the war it should concern itself with the fundamental problem of human welfare in times of peace, namely: public health and the prevention of disease. That seems to be expected by everyone as the ab-

solute basis of any progress we are to make. Now I think it is accepted by everyone that the care of the public health and the prevention of disease is in the last analysis a public and an official responsibility; that is, that no private organization, no philanthropic society of any sort, should regard itself as being charged with the ultimate responsibility in this field; but we all know that the official responsibility which rests upon public health officials, which rests upon you gentlemen here, cannot be discharged adequately unless you have educated and trained public opinion to support you.

Now we have learned in many years of private and public health work in this country that these private organizations—child welfare, tuberculosis societies, or whatever else they may be—if they are wisely conducted can do a great deal towards educating public opinion and towards providing the resources that the public health officials of the country need, in order to carry through the measures which they know should be enforced and administered.

As we begin to look over the field here in the United States, we see organized, operating and effectively operating, a very considerable number of private organizations, tuberculosis organizations, child welfare societies, and others. It seemed to us as an axiom that it would be folly for the Red Cross, because of its great strength in numbers and, possibly, financially, to attempt in any way to absorb these independent movements that have grown up in past years. On the other hand we felt that we might be extremely useful in doing what we legitimately could to coördinate these movements which have been growing up, and which, having been acting independently, sometimes had been unconsciously overlapping to a certain extent, although not so much as one might suppose at first thought. More than that, we could see at once that we might be of enormous assistance by providing quickly and effectively a very large opportunity on the educational side for the public health officials of the country. After all, as everyone knows, the public health campaign rests in the last instance upon the education of the people.

The Red Cross believes that, with its membership, at the present moment about 17,000,000 in the country, with chapters organized in every part of the United States, with machinery organized to reach them quickly and effectively, it can afford you a public quickly reached for the transmission of authoritative information which will ultimately lead to a much more effective health administration than we find at the present moment. We also have a certain advantage in being an organization with certain semi-official attachments to the United States government. While we are not a governmental body, we have points of contact with the national government and yet have absolute freedom in activity and development. We are, therefore, able to do certain things which the Public Health Service, for example, cannot readily do. We can do certain things in our states which even the state officials cannot do, and we can do things in local communities which the local officials cannot do. So that at this moment we are conceiving ourselves as a great potential, coöperating and coördinating body in the field of public health, without any idea whatever of attempting to assume the responsibility of administering or operating directly the various phases of public health activity.

In other words, we are trying to stand behind you, the health officials of this country, and the trustees of every legitimate private public health organization existing in the country, with the idea of strengthening every one of these movements and of filling in, I might say, the chinks in the field not now covered until other adequate agencies, official or private, are ready to conduct these particular activities themselves. At the present moment we see ourselves as charged with the necessity of stepping into the field actively in one or two lines.

For example, I think you will all agree that in developing a broad public health program in the United States, one of our greatest deficiencies at the moment is the provision for public health nursing and visiting nursing. We feel we can at this moment increase rapidly and largely the number of trained public health nurses; that we will for the time finance a largely increased number of public health nurses, always, as I said, looking towards the

time when this and other phases of public health activity will be assumed by the public health authorities. And, therefore, we wish to lay out our plans in such a way that this activity is always carried out in coördination with the plans of the public health officials, and ready to be modified and turned over to them as soon as they are in a position to accept it.

One other point I wish to make perfectly clear. I have come into touch in the last few weeks with a certain note of apprehension in various parts of the country as to what the Red Cross was going to try to do. I have been conscious of a feeling on the part of a great many that this great organization, with immense power as it has by reason of its numbers and its prestige, might run amuck in this and other fields; that it might attempt to assume this and that function. Now I assure you that is exactly the thing we do not want to do. We realize that during the war, as every one else realizes, it was necessary that the Red Cross, like the Army, like any other activity mobilized for war purposes, had to be conducted in a more or less autocratic way; that local chapters required absolute direction from a central authority in Washington, and to get results quickly specific directions had to be given and had to be obeyed, whether the chapters or local divisions agreed with them or not. Now the war is over, and we see perfectly clearly that there must be so far as possible a complete reversal in the point of view. In other words, in times of peace the Red Cross must be managed as far as possible on a democratic basis. We must turn the authority and the initiative just so far as possible from the central body at Washington to the local chapters, realizing that the problem in every section and locality of the country varies. Therefore, the right of determining the form of action of the Red Cross must be largely left to these local bodies, the states and chapters.

The National Red Cross must, of course, reserve to itself the laying down of certain broad principles of action, of pointing out the fields in which it is legitimate for an organization bearing the Red Cross name to operate, and of saying that there are certain kinds of things the Red Cross cannot do. It will be left very largely to the local chapters of the Red Cross to determine what they shall do in detail.

This is the condition we are now in. I think I, and a good many of my colleagues, have our personal ideas somewhat more defined. I can begin to see fairly clearly how we can be of great service in the whole field of child welfare, but I do not see it as absorbing the whole child welfare program. We can be of use in the tuberculosis problem. I can see how we can be of great use to the representatives of the Federal and state health departments, particularly in affording a large public.

At this moment what we wish from the members of the Association is to be told what you think we can do, for we are potentially very powerful, to help you. I can only tell you confidentially that, while we shall, of course, reserve the right to determine whether or not what you ask can be done, I do not think we will determine to do anything which you agree cannot, or should not, be done.

THE PRESIDENT: On behalf of the Conference the chair recognizes very gratefully this illuminating and reassuring statement of the purposes and plans of the Red Cross. I have been one of those, of whom there have been many, who have looked with some apprehension on the reported plans of the Red Cross. It is perfectly evident that any program affecting public health in the United States can be adopted successfully only after a careful consideration of local needs. Massachusetts and Montana, Ohio and California and Mexico are so far apart in climate, population, health conditions and everything affecting the problem that it is absolutely necessary that any program of public health which is to concern the whole of the United States be carefully considered with a very careful view of local conditions.

DR. A. W. FREEMAN, *Ohio:* I think therefore, Mr. Chairman, that the logical thing for us to do in this emergency is to utilize the new machinery which we have today created in the Executive Committee. I move you that, instead of attempting to work out details of this program with Dr. Farrand at this time, the Executive Committee of the Conference be authorized and directed to arrange with Dr. Farrand for a conference to work out a complete plan of coöperation between state health organizations and the Red Cross for its new program of public health work, and that the Executive Committee be authorized to act for the Conference in this matter. (Seconded and carried.)

# PROPER RELATION OF FEDERAL AND STATE GOVERNMENTS IN PUBLIC HEALTH WORK.

ALLAN J. McLAUGHLIN, M. D.,

*Assistant Surgeon-General, United States Public Health Service, Washington, D. C.*

Read before the Conference of State and Provincial Boards of Health, June 7, 1919, at Atlantic City, N. J.

**How far should the Federal Government go in dictating state health policy? Dr. McLaughlin says that it should coördinate state departments just as these coördinate the departments of cities. "The United States Public Health Service," he says, "has a detailed, comprehensive nation-wide program for every public health problem, but these programs can not be put into effect without adequate funds."**

THE ideal relation between Federal and state governments in public health work should be such as to insure the covering of the entire field of public health between them. All gaps should be covered by one or the other jurisdiction, and in twilight zones there should be the most complete understanding of a frank policy which would preclude overlapping, duplication or conflict.

If, under such a policy, the Federal Public Health Service did work which the state should do but was unable to do, the Federal Health Service would be acting presumably under its authority to assist states, and its activities should not continue beyond the time when the state officials were able and willing to take over the work.

In order to consider the proper relation between Federal and state public health agencies, it is necessary to review briefly the powers and functions of the United States Public Health Service and the authority therefor.

The functions of the United States Public Health Service may be considered under the following heads:

1. Police.
2. Investigative.
3. Demonstrative.
4. Coördinative.

## POLICE POWER.

Police power has been given very sparingly to Federal health authorities and delegated by states in large measure to local authorities because the ultimate application of police power to the individual citizen logically belongs to the agency with which he is in direct contact, viz., the local board of health.

It is clear that police power not specifically given by the Constitution to Federal agencies is reserved to the states or to the people. There is also police power implied but not expressed in the Constitution inherent in the Federal government in connection with the general welfare and interstate commerce clauses. This power is necessary to cover conditions not amenable to or corrigible by state police power and its exercise cannot be a usurpation of state authority.

Congress has repeatedly given police power by statute to Federal agencies to cover such conditions but has always maintained the attitude that in health matters the State and local agencies should be utilized to the limit of their legitimate fields.

The Quarantine Law of 1890 gives very definite powers to the Federal health authorities to prevent the introduction of cholera, yellow fever, smallpox or plague from one state to another without reference to utilization of state machinery, and provides for the promulgation of rules and regulations with penalties for infraction thereof.

The Quarantine Law of 1893, which includes all communicable diseases, provides that the Public Health Service shall coöperate and aid state and municipal health boards in the execution and enforcement of state laws and regulations and of Federal laws and regulations. It provides that where no state or local regulations exist or where these are insufficient, the Secretary of the Treasury shall make such additional rules and regulations as

are necessary to prevent interstate spread of such diseases.

It provides, further, that the rules and regulations promulgated by the Secretary shall be enforced by state and local authorities where they will undertake to execute and enforce them, but if state or municipal health authorities fail or refuse to enforce said rules and regulations, the President shall execute and enforce the same and adopt such measures as in his judgment shall be necessary.

In order to carry out this policy of utilizing state and local health machinery in the prevention of the spread of disease, Congress has repeatedly appropriated large sums "to aid state or local boards or otherwise in preventing and suppressing communicable disease" (Epidemic Fund).

Congress annually appropriates for the Interstate Quarantine Service sums of money from $15,000 to $1,500,000 for coöperation with state and municipal health authorities in the prevention of the spread of disease in interstate traffic.

The question of delimiting the police owners of Federal and state authorities is an academic one—and for practical purposes satisfactory results can be secured in most sections by utilizing state power alone coördinated by the Federal Health Service in a national program.

As the state health machinery becomes more highly organized and perfected, the need of exercise of Federal police power will diminish and the need of Federal coördinative activity will increase.

The prevention of the spread of epidemic disease from one state to another, may be handled in one of two ways:

1. By the present system of awaiting the outbreak of an epidemic and then attempting its suppression.

2. By maintaining such a close check upon disease prevalence that prompt and early information of undue prevalence is at once available, and suppressive measures taken before actual epidemic proportions are reached.

It is manifest, therefore, that the policy of the United States Public Health Service should be to develop state health departments and especially those divisions in a state health department whose effective operation in the interest of the state itself tends to prevent the spread of disease from one state to another.

The most effective means of preventing interstate spread of disease at the disposal of the Federal government today lies in the development and utilization in every state department of health of strong divisions for control of communicable diseases, water and sewage.

To develop these divisions and bring them to a standard of uniform excellence it is necessary to detail trained men from the Public Health Service to assist the state health officers. In many states these divisions (usually called divisions of communicable disease and divisions of sanitary engineering) do not exist or exist in name only. In states which possess such divisions plain justice suggests that the Federal government should render some assistance in doing work which is called for by Federal law and regulation.

### Investigative Functions.

The investigative function of the Public Health Service has no limit other than the amount of money which may be appropriated by Congress.

The Act of 1912 authorized the service to study and investigate the diseases of man and conditions influencing the propagation and spread thereof, including sanitation and sewage, and the pollution directly or indirectly of the navigable streams and lakes of the United States.

Under this very broad authority, investigation of any phase of public health work may be undertaken. The act further provides for the publication of information for the use of the public.

Sufficient funds should be secured from Congress to undertake and carry on such research as is necessary in order to furnish to the health officer in the field diagnostic, prophylactic and curative weapons for the suppression of communicable disease.

The economic advantage of doing this in one hygienic laboratory rather than in forty-eight is at once apparent.

### Demonstrative Functions.

The work done under the investigative authority of the Act of 1912, especially the

field work, is nearly always demonstrative and can be utilized as public health demonstrations of all kinds.

In addition Congress has given specific authority for demonstrations in rural sanitation contingent upon partial support by state or local agencies.

Nothing compares in effectiveness with an actual demonstration of how work should be done in the individual communities. Here again the United States Public Health Service is limited only by the amount of money appropriated by Congress.

### Coördinative Functions.

The coördinative function of the Public Health Service in achieving national success against any public health problem is perhaps the most important function which the service exercises. Some Federal coördinating agency is necessary in order to secure a synchronous attack upon any disease, with uniformity of method over the entire area of the United States. To secure the maximum of improvement in our national health we must have nation wide programs for each problem with which health officers are confronted.

The example of our Venereal Disease Campaign serves to show what may be accomplished in other fields by the same methods.

The coördinative function of the Federal Public Health Service is but the national demonstration of what is exercised by state and local health authorities over smaller areas.

In other words, public health organization —Federal, state and local—should have the following relationship:

| *Supervisory and Coördinating authority* | *Working units to be coördinated* |
|---|---|
| U. S. Public Health Service | State Departments of Health |
| State Department of Health | Local Health Departments |
| Local Health Departments | Individual Citizens |

The coördinating and supervisory authority furnishes the program in order to secure team work and endeavors to have this program carried out by all the units in the area within its jurisdiction.

The Public Health Service has a detailed, comprehensive, nation-wide program for every public health problem, but these programs cannot be put into effect without adequate funds.

I hope I have made it clear that the only need of the Public Health Service is sufficient money to carry out its programs.

The service now possesses all the authority and function which can be given by Congress to a Federal Health Agency within the limits of the Constitution.

Public Health work aims at the eradication of preventable disease, the elimination of corrigible, physical and mental defects, and the maintenance of all individuals in the best possible physical and mental condition.

To achieve such aims demands a partnership with an exhibition of most perfect teamwork by Federal, state and local officers. I have already mentioned such a partnership in the Venereal Disease Campaign. The proposed Lever Bill for rural hygiene provides if anything, a better example of what such a partnership should be.

There is ample precedent for this type of Federal coöperation with state and local authorities as Congress has passed similar legislation covering good roads, vocational education and farm demonstration work.

Let us waste no time in a futile effort to delimit accurately the police power and authority of each of these three jurisdictions, but let us leave such discussion to the academicians. As practical men let us disregard the theoretical boundaries of varying police jurisdictions and attack each health problem by joint concerted action according to a nation-wide program, remembering that the spread of disease recognizes no boundaries—local state or Federal.

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**"Count me in for New Orleans, if I've got a leg left to stand on,"**
**This is what an enthusiastic member has written the Secretary.**
**Why not meet him there October 27–30, and make the Forty-Seventh Annual Meeting of the A. P. H. A. a record breaker!!**

# PRESENT STATUS OF PNEUMOCOCCUS VACCINE.

RUSSELL L. CECIL, MAJOR, M. C.,
*Army Medical School, Washington, D. C.*

Read before the Conference of State and Provincial Boards of Health, June 7, 1919, at Atlantic City, N. J.

**Out of 13,460 soldiers at Camp Wheeler who were vaccinated with pneumococcus lipovaccine less than one in one hundred was sick enough for the hospital. The camp pneumonia rate for unvaccinated soldiers was five times (crude) or twenty times (corrected) that for vaccinated. Civil life has important uses for such vaccination.**

THE great prevalence of typhoid fever in the Spanish-American War served to stimulate interest in the subject of prophylactic vaccination against this disease, and lead finally to the perfection of typhoid vaccine by Colonel Russell, and its compulsory administration in the American army. The value of typhoid vaccine has been thoroughly established during the present war, as is indicated by the very low incidence of this disease among the American troops.

It is natural, therefore, that the great prevalence of pneumonia during the present war served to stimulate interest in the subject of pneumococcus vaccination. There was already some evidence that pneumonia could be prevented by the use of pneumococcus vaccine, for Lister in South Africa had undertaken prophylactic inoculation of large groups of miners against pneumonia, and had reported excellent results. Lister had previously classified the pneumococci which he had encountered in South Africa, and, finding that there are three types which cause most of the pneumonia, he combined these into a vaccine. They were known as types A, B and C; types B and C corresponding to our types II and I respectively; type A has not been encountered in America.

During the winter of 1917–18, I was stationed in the Base Hospital at Camp Upton. Pneumonia began to be prevalent in December and was practically all of pneumococcus origin. It seemed an opportune time to undertake some experiments with a pneumococcus vaccine, and, after consultation with Dr. Rufus Cole of the Rockefeller Institute, it was decided to prepare a vaccine, type I, II and III pneumococcus, in approximately equal parts, and to inoculate about 50 per cent of the camp with this vaccine. Major J. H. Austin of the Rockefeller Institute, prepared the vaccine and carried out some preliminary protection tests on mice which demonstrated that a certain amount of immune substance could be stimulated by the subcutaneous injection of pneumococcus vaccine. Twelve thousand five hundred and nineteen men were vaccinated at Camp Upton (about 40 per cent of the camp strength), most of the men receiving three or four inoculations at intervals of five to seven days. The total dosage was 6 to 9 billion of types I and II, and 4½ to 6 billion of type III. The local and general reactions were usually mild, but there were quite a few small, sterile, infiltrations at the site of the injection which appeared to be an expression of pneumococcus susceptibility.

The results of the vaccination were highly satisfactory. The men were under observation for ten weeks following vaccination, and, during that time no cases of pneumonia of the three fixed types occurred among the men who had received two or more injections of vaccine. In a control of approximately 20,000 men, there were 26 cases of pneumonia of types I, II and III during the same period. The incidence of pneumococcus type IV and streptococcus pneumonia was much less among the vaccinated troops than among the unvaccinated troops. The final figures showed only 17 cases of pneumonia of all types occurring among 12,519 men who received vaccine; whereas, among unvaccinated troops during the same period there was a total of 173 cases of pneumonia of all types. For the ten weeks during which the

men were under observation, the pneumonia death-rate for vaccinated troops was only 0.83 per thousand; for the unvaccinated it was 12.8.

In spite of the successful results obtained at Camp Upton, there was certain objection to pneumococcus vaccine which interfered somewhat with its extensive use. In the first place, three injections were necessary in order to obtain a satisfactory immunity, and this for obvious reasons was burdensome to the regimental surgeons and to the men themselves, who had already received typhoid and smallpox vaccine. Another objection to pneumococcus vaccine was the occurrence of small sterile infiltrations which sometimes followed its use.

The result of this experiment, however, was so promising that the Surgeon-General appointed a special commission to make further investigation as to the value of pneumococcus vaccine, and this commission was directed to proceed to Camp Wheeler, Georgia, for the purpose of instituting voluntary vaccination among the troops. The commission originally consisted of Capt. Henry F. Vaughan and myself; later however, a number of other assistants were sent to help us. Camp Wheeler was selected for this second experiment for the reason that pneumonia had been particularly prevalent in that camp.

In this experiment we decided to substitute a pneumococcus lipovaccine for the saline vaccine which we had used at Camp Upton. This vaccine was prepared for us by Col. E. R. Whitmore of the Army Medical School, and the dose finally adopted after some preliminary experiments was 30 billion pneumococci (10 billion of each of the fixed types in one cc. of oil). Upon our arrival at Camp Wheeler we found that the pneumonia which was occurring among the troops there was practically all of the lobar type and of pneumococcus origin. Nearly half of the pneumonia, moreover, was being caused by the types of pneumococci against which we proposed to vaccinate.

It soon became apparent, however, that conditions at Camp Wheeler were very different from those which had prevailed at Camp Upton the preceding winter. In the first place, many of the men whom we were to vaccinate at Camp Wheeler were raw recruits of rural origin, a considerable part of them being Negroes. The men vaccinated at Camp Upton had come chiefly from New York City, were well seasoned at the time of vaccination and were mostly of the white race. The situation at Camp Wheeler was further complicated by the arrival of the influenza epidemic, which arrived shortly after we began vaccinating the men.

Altogether 13,460 men, or about 80 per cent of the entire strength of Camp Wheeler, were vaccinated against pneumonia with pneumococcus lipovaccine. Both the local and general reactions produced by the vaccine were mild. Only .7 per cent of those who received the vaccine were sufficiently affected to receive hospital care. None of these were seriously ill and a majority of them returned to duty in two or three days after admission. The troops inoculated were under observation from two to three months after vaccination. During this period there were 32 cases of pneumonia, types I, II and III pneumococcus among the vaccinated, four fifths of the camp; and 42 cases of these types among the unvaccinated, or one fifth of the camp. If, however, all cases of pneumonia that developed one week after vaccination are excluded from the vaccinated group, there remain only 8 cases of pneumonia produced by the fixed types and these were all secondary to severe attacks of influenza. This exclusion is justified by the fact that protective bodies do not begin to appear in the serum until the eighth day after injection of pneumococcus lipovaccine.

The weekly incidence rate for pneumonia among the vaccinated troops was conspicuously lower than among the unvaccinated troops, and the incidence rate during the period of the experiment was twice as high for unvaccinated recruits as for vaccinated recruits, and nearly seven times as high for unvaccinated seasoned men as for vaccinated seasoned men. It was found that the influenza caused a marked reduction in the resistance to pneumonia even in unvaccinated men. Of the 155 cases of pneumonia developing one week or more after vaccination, 133 were secondary to influenza.

The death-rate for 155 cases of pneumonia that developed among vaccinated men one week or more after vaccination was only 12.2 per cent; whereas, the death-rate of 327 cases of all types that occurred among unvaccinated troops was 22.3 per cent. The death-rate for primary pneumonia among vaccinated troops was 11.9; among unvaccinated troops, 31.8, almost three times as great.

It must be admitted that the results of pneumococcus vaccine at Camp Wheeler were not so striking as those obtained at Camp Upton in 1918, largely on account of the influenza epidemic; but, although the influenza obscured to some extent the effect of pneumococcus vaccine at Camp Wheeler, we found that the results were sufficiently encouraging to justify its further use.

It will be observed that all investigations which have been done up to the present time, in respect to pneumococcus vaccination, have been based upon statistical evidence. After completion of the work at Camp Wheeler it seemed very desirable that experimental studies should be undertaken on animals as to the value of pneumococcus vaccine. It happens that the monkey is highly susceptible to pneumonia, and we were fortunate in being able to secure a considerable number of these animals for such an investigation at the Army Medical School at Washington. Capt. Francis G. Blake collaborated with me in this study, and the results of our investigations will be reported at the Atlantic City meeting.

These experimental studies which Captain Blake and I are now conducting, taken in conjunction with experiments which have been carried out in camps, afford a rational basis for the use of pneumococcus vaccine. With the cessation of the war the question naturally arises, "How much use can be made of pneumococcus vaccine in civil life?" Vital statistics now show that pneumonia claims more people in the United States than any other infectious disease, and the rate seems to be increasing slowly each year. Furthermore, a majority of the pneumonia seen in adults is of the primary lobar type which is the type of pneumonia most amenable to prophylactic vaccine. Pneumonia, like tuberculosis, attacks most of its victims in the prime of life, at the time when they are most useful to society. Sanitary measures will, of course, do a great deal toward limiting the ravages of pneumonia, but hygienic precautions against pneumonia are hard to enforce.

Typhoid fever is rapidly being eliminated from civilian communities by means of improved sanitation and pure water and milk supplies. Indeed, the time will no doubt soon come when there will be little if any need for prophylactic vaccination against typhoid fever, except in army life.

With pneumonia the case is different; pneumococcus is widely distributed, especially during the winter and spring when colds and coughs are prevalent. This very fact puts any sort of vaccination against pneumonia to a very crucial test. Typhoid fever is a primary infection; the typhoid bacillus rarely finds its way into the alimentary canal of healthy men. The pneumococcus, on the contrary, is frequently found in a healthy man, and the host, therefore, is constantly exposed to infection at some moment when his resistance is at a low ebb. Moreover, pneumonia in most of the camps at least has been largely a secondary infection, overtaking the patient when the natural resistance has been lowered to such a degree that pulmonary infections of some kind are almost unavoidable. In cases of this kind the problem is to reduce the chances of the patient becoming infected with a highly virulent organism, so that if pneumonia does develop the disease will run a mild course.

What are the present limitations to pneumococcus vaccination?

First: One of the chief difficulties which we encounter in fighting against pneumonia is the variety of types of pneumonia which are encountered. Even if streptococcus, influenza and other rare forms are eliminated for the reason that they are not often seen in civil life, the pneumococcus itself occurs in such a variety of types that it is difficult to prepare a vaccine capable of protecting against all of them. If type IV pneumococcus were a fixed type similar to types I, II and III, this difficulty could be obviated. But type IV pneumococcus is simply a name given to a large group of pneumococci which appear to be

entirely independent of each other and which give no mutual protection. It is probable that when a very high degree of active immunity is produced, such as that following an actual attack of pneumonia, a certain amount of cross protection exists between the various types of pneumococcus. Pneumococcus vaccine, however, produces at best only a moderate degree of protection and probably affords very little cross immunity. It is fairly well established that the larger the dose of vaccine, the more efficient the protection inferred. It is quite possible to give a dose of vaccine containing three or four types of pneumococcus, and to give it in sufficiently large dosage to give good protection; but, in order to obtain any kind of protection against the type IV group of pneumonias, a type by the way which was exceedingly common during the influenza epidemic, it will be necessary to introduce a number of different type IV's, and this would make the dose of vaccine too large for practical purposes.

Second: Pneumonia rarely occurs as an epidemic scourge like smallpox so there would be difficulty in having vaccination against pneumonia made compulsory. People do not fear the disease and are, therefore, unwilling to submit to the inconvenience of being vaccinated. Unless vaccination against pneumonia is practically compulsory, it will be very difficult to get a large number of candidates in civilian communities.

Third: The occasional occurrence of severe local and constitutional reactions is another objection to pneumococcus vaccine at the present time. At Camp Wheeler there were about 100 admissions to the hospital following the vaccination of nearly 14,000 men. None of these men were severely ill, most of them complaining of fever, headache and backache. A good many of those who did not suffer from constitutional reactions were annoyed by severe local reactions, and occasionally a sterile abscess would appear and cause the patient some alarm. The great need at the present time is for a detoxicated vaccine. Considerable work has already been done along this line. Gay and Besredka and others have made claims for sensitized vaccines; others have thought that the road to success lay along the lines of split proteins; more recently claims have been made for lipoids. There still remains, however, a great deal to be done along this line.

### Present Indications for Pneumococcus Vaccine.

The most important field for pneumococcus vaccine at the present time is in military organizations. The sudden transition in the life of a recruit from the comforts of home to the hardships and experiences of camp life inevitably lead to a high incidence of pneumonia in every military organization, but especially in the training camps. Pneumococcus vaccine should play an important part in the prophylaxis against pneumonia in army life. It was unfortunate that wider use was not made of pneumococcus vaccine before the influenza epidemic.

Second: In large institutions, such as insane asylums and orphanages, etc., the use of pneumococcus vaccine would unquestionably lower the incidence rate of pneumonia, which, in some of these institutions is quite high. An experiment is being carried out at the present time by the United States Public Health Service in the insane asylums of New York State, which should give some very interesting results.

Third: There are certain groups in our large cities which should be vaccinated against pneumonia; firemen and policemen, for instance, are being constantly exposed to cold and wet, and there are certain classes of industrial workers such as miners, stone-cutters, etc., who should be vaccinated.

Fourth: Epidemics of pneumonia occasionally occur in civilian life and pneumococcus vaccine could be used with much benefit at such times.

Fifth: There are certain people who are very susceptible to pneumonia and suffer from repeated attacks of the disease. It is probable that such individuals are infected with a different type of pneumococcus in each instance. If these patients were vaccinated perhaps once a year with a polyvalent pneumococcus vaccine, it is highly probable that further attacks could be prevented.

# USE OF ANAËROBIC CULTURE METHODS IN THE STUDY OF INFLUENZA.*

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**In the search for the cause of such an important a disease as influenza, negative evidence with anaërobic cultures is of distinct scientific value. Professor Norton here presents conclusions derived from a careful series of investigations. : : : : : : : : :**

THIS report is of negative findings made during February and March of 1919, long after the height of the influenza epidemic, but on such cases as appeared to be similar to those occurring during the fall of 1918.

The methods used were in general those of Noguchi (1) and of Plotz (2).

*Media.*—Five media were used for anaërobic cultivation. The solid media had as a basis meat infusion peptone (2 per cent), salt agar (1 per cent) made neutral to phenolphthalein before sterilization. This gives a $P_H$ value of 8.0 to 8.3 after sterilizing. (1) Ascitic fluid collected asceptically. This was used chiefly for the experiments on blood. (2) Ascitic fluid agar made by adding one part of the fluid to two parts of 0.5 per cent glucose agar. (3) Hiss serum water made by adding one part of beef serum to three parts of distilled water and sterilizing in the Arnold. (4) Serum water glucose agar. Various proportions of the ingredients were tried varying from one part of serum water with ten of agar to ten parts of serum water with one of agar. They all gave the same results, so that one part of serum water with four of the glucose agar was used as these proportions gave a medium fairly rich in serum but sufficiently solid to handle easily. Sterilization was effected in the Arnold. (5) Heated blood agar prepared by adding 5 per cent of sheep blood to the nutrient agar at 95° C. This medium proved to be an excellent one for growing anaërobes as was shown by controls with pure cultures, and was particularly useful for plate work. In addition to these five media aërobic controls were made on unheated blood agar.

*Methods.*—Media in flasks (used principally in blood work) were covered with a layer of sterile paraffin oil. Liquid tubed media were treated in the same way and then placed in anaërobic jars. Stab cultures were made in tubes in solid media containing serum water or ascitic fluid. The cotton plug was then pushed in, pyrogallic acid and sodium hydroxide placed on it and the tube closed with a paraffined stopper. Smears on plates were made in the usual manner. All tubed media and all plates were placed in an anaërobic jar. This consisted of a jar 12 inches high and 6½ inches in diameter set on a ground glass plate and with two openings, one at the top and the other near the bottom. The air in the jar was displaced by purified hydrogen from a Kipp generator, and the pressure then slightly reduced by attaching to a vacuum pump in order to hold the jar securely to the glass plate. Usually a beaker containing sodium pyrogallate was placed inside the jar. The incubation temperature was 37° C. Controls with known strict anaërobes and strict aërobes were made.

* Influenza Investigations, United States Public Health Service.

*Examination of Sputum.*—Eighteen samples of sputum from influenza patients, all but three uncomplicated with pneumonia, were cultured on ascitic agar, serum agar, heated blood agar and unheated blood agar. The first three media were incubated anaërobically and the last one aërobically. After twenty-four hours some of the growth from each anaërobic tube was smeared on both heated and unheated blood agar plates and incubated respectively under anaërobic and aërobic conditions. Colonies were picked from these plates and replated when necessary. The organisms obtained in the anaërobic cultivation were paralleled by those found on the aërobic plates. No strict anaërobes were found. Organisms belonging to the M. catarrhalis group grew more luxuriantly than the gram positive cocci under anaërobic conditions, and also better than on aërobic plates.

*Tonsils and Nasopharynx.*—Material was obtained from the tonsils and nasopharynx from a few cases of influenza and submitted to the same examination as described for sputum. The results were no different from those obtained with the latter. No strict anaërobes were encountered.

*Blood.*—Blood from ten hospital patients was examined. It seemed desirable to get material as early as possible in the disease. Most of the cases had been admitted within twenty-four hours. In no case was the time more than four days. Ten cc. of blood was withdrawn from the median basilic vein of the arm, 5 cc. immediately added to a flask containing 100 cc. of sterile serum water and 5 cc. to 100 cc. of ascitic fluid. The material in the flasks was then covered with a layer of sterile paraffin oil and incubated. At the end of four days a loopful was removed from each of the flasks and streaked on both heated and unheated blood agar plates, the former being incubated anaërobically and the latter aërobically. These were examined after twenty-four and forty-eight hours in the same manner as were the plates from the sputum cultures. A second examination of the original flasks was made after two weeks incubation. Here also no strict anaërobes were found. No growth was obtained in any of the ascitic fluid flasks. Gram positive diplococci (facultative anaërobes) were obtained in two instances from the serum water medium and small unidentified Gram negative cocci (also facultative anaërobes) in two other cases. No organisms were isolated after fourteen days which had not been present at the time of the four-day examination.

*Summary.*—Anaërobic examination of sputum, material from tonsils and nasopharynx and of blood has failed to yield any evidence that strict anaërobic organisms are concerned in influenza.

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# NATURE OF THE TOXIC AGENT IN "MEAT POISONING."

ISIDOR GREENWALD,

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**This is only a report of progress, negative in parts, in a very elusive matter. Ptomaines are not responsible; microörganisms only partly so. Further investigation is suggested along the lines of a search for possible heat-labile toxins. : : : : : : :**

THE experiments to be reported in this paper were performed with a view to obtaining some information as to the nature of the substances responsible for the symptoms of "meat poisoning." It was hoped that the information so gained might help to prevent the occurrence of such poisoning in the armies of the United States. The results were negative but it is believed that the results help to indicate the direction which future investigation should take.

The term "meat poisoning" may be applied to cases of poisoning due to the accidental or intentional addition to the meat of inorganic or organic poisons (metallic salts, alkaloids, etc), to the use for food of species whose flesh is toxic to man, to the use of the flesh of animals which have fed on certain substances which are toxic to man, or to the reaction produced in a few individuals by the ingestion of a substance harmless to all save these few. But it is generally restricted to the symptoms following the ingestion of a flesh food, ordinarily considered as wholesome. If several persons partake of the meat, all, or nearly all, are made ill and suffer similar symptoms.

In the light of our present knowledge, such a change from the usually wholesome character of the meat is due to microörganisms, probably bacteria. The suspected material is not always available but the mass of evidence indicates that that this is the case (1, 2). These organisms may infect the meat during storage, during its preparation for food or be present in the meat at the time of slaughter. The latter seems to occur only in animals that are quite sick at the time of slaughter (2). The stage of decomposition appears to have comparatively little to do with toxicity. Badly decomposed meat (venison, game birds) is eaten, by preference, by large numbers of people. On the other hand, meat of perfectly fresh appearance, taste, and odor, but infected with a virulent strain, may cause serious illness and death.

The symptoms observed divide the cases into two classes. In one group, loss of gastric motility, constipation, disturbance of vision, dizziness and muscular weakness predominates. They appear slowly and persist for a long time. The other is characterized by nausea, vomiting and diarrhœa and fever. The symptoms appear rapidly and recovery is equally rapid, though severe cases may be persistent. Death may occur at any time from a day to over a week.

Upon bacteriological examination it is found that the two types of symptoms may be referred to two types of microörganisms, *B. botulinus* and bacteria of the paratyphoid group. *B. botulinus* is an obligate anaërobe and is not found in

meat, except after some form of preservation. In fact, the intoxication it produces was long known as "Wurstverfitung." Though the spores may be heat resistant (3, 4, 5), the toxin is really destroyed by heat (100°c. for 5 min., or 70° c. for 30 min.), and it is this alone that is dangerous. The organisms do not seem to produce a toxin within the intestine (3, 4, 5). The prophylaxis is evident.

But the other class of organisms is not so readily disposed of. In several cases, though by no means generally, these have been found to form a toxin which may be heated to 100° c., or even 120° c., for several minutes, in some cases as long as half an hour (2, 6, 7, 8). One, obtained by Van Ermengen, (9) was apparently a proteose. It was soluble in water, precipitated by alcohol, mercuric chloride, picric, tannic, and phosphomolybdic acids but not by ammonium sulfate, sodium chloride, or hydroferrocyanic acid. It gave the Millon, Adamkiewiecz and biuret reactions.

The relatively simple substances known as ptomaines cannot be regarded as responsible for the symptoms observed. They are not nearly sufficiently toxic, particularly when given by mouth. Their existence, in any but very badly decomposed meat, is open to question. Moreover, they may be produced by the very means taken for their isolation. The work of Ewins (10), of Baumann and Ingvaldsen (11) and of Greenwald (12) shows that methylguanidine is formed from creatine by the reagents usually employed for their separation. What is true of this substance may also be true of others.

In these experiments no attempt was made to investigate the possible occurrence of heat-stable toxins. Under ordinary conditions, it would be quite impossible to separate their effects from those produced by the ingested bacteria. Broth cultures and parenteral administration were judged unsuitable. Results obtained with such methods have little significance in the investigation of a problem such as this. "Meat poisoning" is produced by the *ingestion* of food that has not, as a rule, been exposed to prolonged bacterial action. Also, the filterable toxin of cholera vibrios, which will produce severe gastroenteritis when injected intraperitoneally, is harmless when given by mouth (13). What is true of cholera vibrios may also be true of other organisms.

The following procedure was adopted. A weighed quantity, about 100 gm., of hashed meat (prepared in the laboratory from fresh beef) was introduced into each of five or six glass jars. The meat was then infected by the addition of 2 or 3 cc. of a 24-hour broth culture of the organism to be studied, and the jars were then set aside at room temperature (10° C. to 25° C.). After a day or two the tests were begun. Each day a jar was taken, immersed in water which was then rapidly heated to boiling and kept boiling for thirty minutes. The jar was then removed and the meat mixed with one-fifth of its weight of bread crumbs. This served to absorb the liquid. The mixture was then fed to rats and mice. For guinea pigs it was found necessary to dilute the mixture further by the addition of three-sevenths of its weight of chopped lettuce or carrots. Each day, another jar was taken, treated in the same way and fed to the same animals.

The following strains of bacteria were used:

*B. enteriditis* (obtained from Dr. J. Bronfenbrenner, Harvard Univ.).

*B. enteriditis* (Dr. W. Rothberg, American Museum Nat. History, N. Y.).

*B. putrificus* (Dr. F. Hulton-Frankel, Columbia Univ.).

*B. botulinus* (Dr. F. Hulton-Frankel, Columbia Univ.).
*B. fecalis alkaligenes* (Dr. F. Hulton-Frankel, Columbia Univ.).
*B. proteus*, 2 strains (Dr. F. Hulton-Frankel, Columbia Univ.).
*B. paratyphoid B.*, 4 strains (Dr. O. E. Jordan, Univ. of Chicago). (Isolated from meat supposed to have caused poisoning).

Meat condemned as being likely to give rise to "meat poisoning" was obtained from a slaughter house. There were two samples of meat from cows suffering from septicemia and three from calves with pyemia, enteroperitonitis and septicemia, respectively. These were used as in the other experiments, but were not further infected. The last sample of meat was also fed in the raw state.

The results were all negative. The rats and mice thrived on the diet. The guinea pigs, as a rule, lost in weight because they did not eat enough. But they consumed sufficient of the food to have caused death, if any considerable amount of toxic substance had been present.

At the suggestion of Dr. E. F. Baumann a concentrated cold water extract of meat was sterilized by the addition of hydrochloric acid to a H-ion concentration of 10–3 to 10–4 then neutralized and diluted to bring the NaCl content to 0.6–0.7 per cent. This was infected with a strain of *B. paratyphosus B*. After standing for three weeks at room temperature, the organisms were killed by heating at 70°C. for one hour. No ill effects were observed on feeding this to rats, mice, guinea pigs and a dog.

The failure of the experiment to demonstrate the presence of a heat-stable toxin may have been due to the choice of the experimental animals or to the low virulence of the strains used. It is very likely that man is more susceptible to the products of the bacterial decomposition of meat than are the species used. It is also very likely that more virulent strains would have given different results. But it is also quite evident from the literature that almost all cases of meat poisoning are due to the ingestion of imperfectly cooked food. There are, however, a few cases in which well cooked food appears to have caused illness and one strain, grown in broth, produced a toxin capable of killing guinea pigs when given through a stomach tube. But such organisms must be very rare.

The rapid development of the symptoms of "meat poisoning" indicates very clearly that they are not entirely due to the action of microörganisms within the gastrointestinal tract. There seems to be a heat-labile toxin with produces the acute immediate effects. The bacteria may, or may not, grow and add a further intoxication. The particular organism may be what Van Ermengen (3) calls a "pathogenic saprophyte" such as *B. botulinus*. This organism produces a highly potent toxin but the bacilli themselves are harmless because they are incapable of growing at body temperature. With other organisms, other factors may play a similar rôle. Van Ermengen was unable to infect guinea pigs by feeding them a virulent strain of *B. enteriditis* until he had first neutralized the acidity of the gastric juice. It is quite likely that the gastric juice similarly protects the human organisms.

Further investigation is required and should take the direction of an investigation of possible heat-labile toxins. They were not included in this investigation because the findings, whatever they might have been, could not have affected the prophylaxis to be followed. This includes the ante- and post-mortem inspection of the animals, careful handling and storage and thorough cooking in all cases where the meat may have been infected. The flesh of animals suspected

of infection with organisms of the paratyphoid group should never be used for food.


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# A UNIVERSITY HEALTH SERVICE.


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**Here are hints of value for community medical service as well as for that of a school. Few colleges have developed a real health service for their students, but there are many that need one. The development at the University of Michigan, with five years of experience, ought to be helpful to institutions throughout the country.**


AN important application of medical service is in operation at many of our colleges and universities. The importance of such activity should appeal to public health men who are interested in such phases of community medical work as health insurance, public dispensaries, etc. Richard Cabot characterized the medical attention given to students in some of our universities as an approach to the ideal.

Certainly our universities will fall short of their possibilities if they do not lead in determining the status of new phases of medical work. They have been prompted to develop medical attention to students in many cases because of their paternalistic responsibilities.

The University of California was among the earliest to provide medical attention of this sort on an extensive scale. Its organization is about twelve years old and might well serve as a standard for the development of similar organizations elsewhere. Almost all American colleges and universities now provide some medical attention, on a community basis, for their students. The excellence of the medical attention so furnished to present day students will, doubtless, influence the character of medical service demanded of their communities in the future.

## THE ORGANIZATION AT THE UNIVERSITY OF MICHIGAN.

The demand for medical attention to students at the University of Michigan was met for many years by the facilities of its medical schools only. During 1912, however, the demands for added

facilities resulted in an organized service to be responsible for the health of students. Its activity started with the opening of the 1913 term.

In accordance with the broad ideals, the organization was created as the University Health Service. The scope of its activity was made to include generally all phases of university and student life which might affect student health. Since, however, the greatest demand was for attention to sick students, the clinical work was first inaugurated and has since been the main activity.

The personnel of the service was made up of three men and one woman, full-time physicians, two dispensary nurses, a pharmacist, and a stenographer, headed by Dr. H. H. Cummings. A laboratory assistant and one physician were added later. The physicians were selected to do general rather than specialized work, and were given faculty standing in the department of administration, with graded rank and salaries such as existed in established lines of public health work.

The financial support of the work was entirely from a general student annual fee of $4, collected by the university at registration. The expenditures were governed the same as for other departments, and exceeded the income in only one year. The fee was increased to $6 with decreased attendance of war time. The establishment and operation of the work met with no opposition from local physicians, students or other sources.

### Headquarters and Dispensary.

A building near the campus was equipped as a fairly complete dispensary and as headquarters for the service. The building was soon overcrowded and remains inadequate. Since the greatest demand has been for attention to sick students, most of the work has centered in the dispensary.

Liberal dispensary hours have been maintained when both men and women students could receive unrestricted office attention and ordinary medicine without charge. Prescriptions are filled in coöperation with the university department of pharmacy. Students requiring the attention of specialists are referred to the university hospitals which coöperate with the Health Service. Records are kept and reports are sent to the university authorities at intervals. As would be expected, students often report for very minor troubles. This is not discouraged, since the earliest possible attention is often most important. Opportunity is thus afforded the physician to give attention which may be independent of the complaint, but of considerable importance to the student. The facilities of the service are available to summer school students the same as to those of other sessions.

The following selected summaries, taken from an annual report, illustrate the nature and amount of activity in the dispensary for a typical year:

| | |
|---|---|
| Total dispensary calls | 26,896 |
| Total patients (77 per cent of enrollment) | 5,792 |
| Average daily calls | 110 |
| Estimated average expense per call | 65c |

Diagnoses Selected.

| | |
|---|---|
| Acne vulgaris | 109 |
| Asthma | 18 |
| Appendicitis | 71 |
| Abrasions, various | 25 |
| Abscess, alveolar | 9 |
| Bronchitis | 180 |
| Conjunctivitis | 115 |
| Circumcision | 37 |
| Dermatitis, various | 43 |
| Diphtheria | 12 |
| Diabetes | 2 |
| Epilepsy | 2 |
| Nasopharyngitis, acute | 181 |
| Furunculosis | 117 |
| Fractures | 20 |
| German measles | 58 |
| Gonorrhœa | 19 |
| Hygienic advice | 115 |
| Infections, various, local | 110 |
| Impetigo contagiosa | 17 |
| Laryngitis, acute | 229 |

| | |
|---|---|
| Myalgia | 113 |
| Otitis media, acute | 38 |
| Pharyngitis, acute | 940 |
| Physical examination | 1,620 |
| Pneumonia | 14 |
| Pleurisy | 26 |
| Rhinitis, acute | 673 |
| Scarlet fever | 22 |
| Sinusitis | 34 |
| Sprains, various | 85 |
| Syphilis | 3 |
| Scabies | 3 |
| Smallpox | 1 |
| Tinea cruris | 11 |
| Traumata, various | 125 |
| Tracheitis, acute | 67 |
| Tonsilitis | 433 |
| Tuberculosis | 20 |
| Typhoid fever | 15 |
| Verruca | 121 |
| Vaccination | 1,228 |
| Vincent's angina | 7 |

Record of each call is made on a small printed slip which is filed in an individual folder after an index of names under diseases and other data is recorded. Condensed daily summaries are permanently recorded for use in reports and comparisons.

### Hospital Care.

A necessary part of the attention to sick students is hospitalization, as part of their privileges in the Health Service. Such patients are sent to the hospitals operated by the medical departments of the university, where they may receive free necessary attention for a limit of sixty days. The medical service in the hospitals is given by their regular staffs and is under coöperative supervision of the Health Service physicians. The following selected summaries are from one year's record of hospital cases.

#### Selected Diagnoses.

| | |
|---|---|
| Appendicitis | 40 |
| Abscess peritonsilas | 15 |
| Bronchitis | 1 |
| Diphtheria | 10 |
| Measles | 8 |
| Nephritis | 2 |
| Otitis media acute | 7 |
| Pneumonia | 8 |
| Scarlet fever | 13 |
| Syphilis | 1 |
| Tuberculosis | 1 |

### Other Activities.

Physicians of the Health Service attend students when called to their rooms. For such calls the university collects from the student $1 for a call in daytime and $2 for a night call, and places the money to the credit of the Health Service. The number of such calls during a typical year, 1916–17, amounted to 433.

From the start, a number of lines of activity recognized as fundamental in the prevention of disease and the improvement of health have received some attention from the organization. Of such, a tuberculosis survey of students, rooming and boarding house inspections, and occasional health lectures are noteworthy. Because of the more pressing demand for purely clinical work the collateral activity has been limited.

The organization was able to do important work in war activity by the examination of prospective soldiers and sailors, and by the treatment of those variously stationed at the university. Assistance was given in food conservation and first aid instruction.

### The Fifth Year.

From four years' experience and with a change in administration in October, 1917, considerable effort was made to better systematize and extend the work. It was recognized that in order more nearly to realize the possibilities of a Health Service, regular and sustained effort should be made along various lines well known in preventive medicine. A number of these have been started, but because of interruptions incident to the war, some remain yet as plans for the near future.

Absolute freedom was given students in the selection of a staff physician regardless of sex. Arrangement exists by which

private hospitals may be used in addition to those of the university. Rearrangement of dispensary rooms, records, and staff have been helpful in the standardization of routine for the handling of large numbers of patients. Most of the contemplated lines of extension have had university approval and some have been applied.

All new students are to receive a more uniform, careful and completely recorded examination in coöperation with the departments of physical education soon after entrance into the university. Such records will be of much value in the subsequent care of these young people, and it is hoped that much good advice will result for students before they have progressed far in the university. Women students have been so examined in the past and men of whom gymnasium work was required were examined physically by the Director of Physical Education. Repetition of the examinations annually for each student would be productive of much good.

All freshmen in the literary and engineering departments will be given a series of required lectures and demonstrations concerning the care of their health. Compulsory courses of longer duration in personal health are desirable.

Plans for the establishment of approved boarding and rooming houses, restaurants and soda fountains frequented by university people will require attention to points well known in preventing the spread of disease.

Proof of one successful vaccination against smallpox will be required for continued attendance in the university.

Such an organization has large possibilities in that it might well coöperate with other organizations in developing public health education.

### Conclusions.

From our experience we conclude:

1. That the medical attention given to students in many of our colleges and universities will interest men who are concerned as to the development of community medical service.

2. That five years' experience at the University of Michigan have established its Health Service as a permanent and very necessary part of the university.

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**Reconstruction Program in a Rural Community.**—In central southwestern Iowa there is a region which centers about Creston, from which at least 100,000 people can be reached conveniently. It has been possible to organize this district on a coöperative plan and to install modern machinery for the protection of the public health. The health program for this district includes a health survey of six counties covering the rural and city schools, a central free dispensary for indigent school children, a central free dispensary for tuberculosis, a health and social center with a well-trained public health nurse as executive secretary, a permanent child welfare station for children up to five years of age, a psychopathic clinic for the study of defective, incorrigible and otherwise abnormal children, a training school for nurses where they will receive special training in public health and social service work, and a modern hospital with fireproof buildings and up-to-date equipment.—Katherine M. Olmstead, *The Public Health Nurse*, April, 1919. (*M. P. H.*)

**Infecting Agent in Influenza.**—An emulsion of the sputum from forty-three influenza patients was made in Ringer's solution. This emulsion was instilled into the nose and throat of twelve healthy persons. The Berkefeld filtrate of this emulsion was administered in the same manner to twelve other healthy individuals. Among these were six who had already had influenza. All but these six were attacked by the disease after an incubation period of two or three days. The symptoms were those of a typical influenza. A filtrate of blood of influenza patients was injected into the nose and throat of six more healthy persons with precisely the same results. A pure culture of Pfeiffer's bacillus and a mixed preparation of the Pfeiffer bacillus with pneumococci, streptococci, staphylococci, diplococci were injected into the throat and nose of fourteen healthy people with negative results.—T. Yamanouchi, K. Sakakami and S. Iwashima, *Lancet* (London), June 7, 1919.

# A FEW FACTS TO REMEMBER IN THE INTERPRETATION OF BACTERIOLOGICAL FINDINGS.

PHILIP CASTLEMAN, M. S., M. D.,
*Deputy Health Commissioner in Charge of Bacteriological Laboratory.*
AND
KARL R. BAILEY, M. D.,
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**This is one of the helpful hints for health officers that the Journal intends to present once in a while. The question about interpretation was asked and Dr. Castleman prepared an answer. It was so good an explanation that it seemed worthy of wide distribution, and here it is.**

A GREAT part of the daily routine of a bacteriologist is to answer whys and wherefores of bacteriological findings. To minimize this work we deem it advisable to jot down the following few pointers, with the hope that it will reach a large number of the medical profession and save time which could be utilized to better advantage.

There is no claim for anything original. It is simply a collection of well-known, long-established facts, presented in a concise form:

DIPHTHERIA (K. L.).

I. When positive bacteriologically, clinical symptoms present:
   a. Diphtheria.
II. When positive bacteriologically, clinical symptoms absent:
   a. Convalescence.
   b. Carrier.
   c. Non-virulent K. L. Organisms (Release Cultures).*
   d. Pseudo diphtheretic organisms. (Hoffman Bacillus, etc.)
III. When negative bacteriologically, clinical symptoms present:
   a. Improperly taken cultures.
      1. Application of antiseptics to area of infection prior to taking culture.
      2. Infection with membrane forming organisms not K. L. (Vincents Angina, streptococci, etc.).
      3. Material not taken from base of membrane.
      4. Faulty application of swab to media.
      5. Retaining culture too long in a warm place before submitting to laboratory.
   b. Overgrown cultures.
   c. Faulty technique in laboratory.
      1. Poor smear.
      2. Poor stain.
      3. Inexperienced examiner.
      4. High temperature of incubation (over 40 degrees C.).
IV. When negative bacteriologically, clinical symptoms absent:
   a. Negative.
V. Inconclusive findings:
   a. No growth.
      1. Serum improperly inoculated.
      2. Dry serum.
      3. Improper temperature of incubation.
   b. Contaminated culture.
      1. Non-sterile swabs.
      2. Non-sterile media.

*Animal inoculation and sugar tests only conclusive evidence.

3. Contamination at time of inoculation.

c. Suspicious report.

1. Insufficient growth of culture.
2. Atypical organisms.

TYPHOID (WIDAL REACTION).

I. When positive bacteriologically, clinical symptoms present:

a. Typhoid Fever.
b. Prophylactic reaction.
c. Clinical symptoms similating typhoid; bacteriological findings positive due to active or passive immunization.

II. When positive with atypical clinical symptoms present:

a. Other diseases to be considered.*
b. Active or passive immunization.
c. Insufficient dilution of blood.

III. When positive bacteriologically, with no clinical symptoms present:

a. Carrier.
b. Active or passive immunization.
c. Other febrile diseases.
d. Faulty technique.

1. Insufficient dilution of sera.
2. False agglutination.
3. Use of hot platinum loop.

IV. Atypical Widal Reactions:

a. Early stages of disease,
b. Fading of reaction after active or passive immunity.
c. Insufficient dilution of blood.
d. Paratyphoid fever (Alpha or Beta) or *B. proteus*.

V. Negative widal, clinical symptoms present:

a. Early stages of disease.
b. Faulty technique.

1. Too high dilution of sera.
2. Use of non-agglutinating organisms.
3. Use of hot loop in preparing specimen for test.
4. Insufficient time allowed for agglutination to take place.

c. Faulty taking of specimen.

1. Applying heat to specimen of blood for purpose of drying.
2. Use of strong disinfectant on skin just prior to taking of specimen.

d. Diseases simulating typhoid (pneumonia, military T. B., malaria, etc.).

MALARIA.

I. Positive bacteriologically, clinical symptoms present:

a. Malaria.

II. Positive bacteriologically, clinical symptoms absent:

a. Chronic malaria.

III. Negative bacteriologically, clinical symptoms present:

a. Smears not taken after a chill.
b. Smears taken after prolonged quinine administration.
c. Smears poorly made.
d. Faulty technique.

1. Improper staining.
2. Hurried examination.
3. Inexperienced technician.

TUBERCULOSIS.

(*Sputum Examination.*)

I. Positive bacteriologically, clinical symptoms present: (Pulmonary).

a. Tuberculosis.

II. Positive bacteriologically, clinical symptoms absent:

a. Latent stage.
b. Early stage of disease.
c. Sputum containing too much blood.
d. Faulty laboratory technique.

III. Negative bacteriologically, clinical symptoms present:

a. Saliva submitted instead of bronchial secretions.
b. Focus of infection not open to bronchi.
c. Faulty technique.

*(Miliary T. B., malaria, malignant endocarditis, and pneumonia occasionally give positive Widals.)

1. Improper preparation of material for examination.
2. Failure to shake sputum thoroughly before smearing.
3. Insufficient staining with carbol fuchsin.
4. Over decolorizing.
5. Too hurried examination.

IV. Genito-Urinary tuberculosis:
- a. Animal inoculation and recovery of organisms only conclusive test.

(N. B. Acid fast organisms in direct examination may be smegma bacillus, etc.)

GONORRHŒA AND GONORRHŒAL OPHTHALMIA.

I. Positive bacteriologically, clinical symptoms present:
- a. Gonorrhœa.

II. Positive bacteriologically, clinical symptoms absent:
- a. Chronic case.
- b. Organisms morphologically resembling gonococci.
  (*Meningococci, pneumococci, Micrococcus catarrhalis, etc.*)
- c. Inexperienced technician.

III. Negative bacteriologically, clinical symptoms present:
- a. Chronic case.
- b. Improper method of taking smear.
- c. Improper staining.
- d. Improper examination.

SYPHILIS (WASSERMANN REACTION).

I. Positive serologically, clinical symptoms present:
- a. Syphilis.

II. Positive serologically, clinical symptoms absent:
- a. Latent case.
- b. Inheritance.
- c. Febrile diseases and certain skin or tropical diseases.
- d. Faulty laboratory technique.
  1. Unreliable reagents.
  2. Unskillful technique.
  3. Anticomplementary blood.
     1. Natural.
     2. Old specimen.

III. Negative serologically, positive clinically:
- a. Early stage of disease.
- b. Specimen taken at time of intensive medication or imhibition of alcoholic liquors.
- c. Neurosyphilis (Spinal Fluid Pos?).
- d. Latent syphilis.
- e. Faulty laboratory technique.

PNEUMOCOCCUS TYPE DETERMINATION.

I. Positive bacteriologically, clinical symptoms present:
- a. Positive for type of organism as shown by reaction.

II. Positive bacteriologically, negative clinically:
- a. Normal non-virulent organisms in oral flora.
- b. Faulty reagents.
- c. Faulty technique.

III. Negative bacteriologically, clinical symptoms present:
- a. Faulty technique of collecting sputum.
  (saliva instead of bronchial secretion)
- b. Old specimen of sputum.
- c. Faulty technique.
- d. Faulty reagents.

RABIES.

I. Positive microscopically (on brain smear & section) with positive clinical symptoms:
- a. Rabies.

II. Positive microscopically, negative clinically:
- a. Early stages of disease (clinical symptoms not developed).
- b. Faulty technique (animal inoculation desirable).

III. Negative microscopically, positive clinically:

a. Animal killed in the early stages of the disease.
b. Destruction of brain tissue due to shooting through the brain.
c. Faulty technique (animal inoculation desirable).
d. Disintegration of tissues due to age or temperature.

MILK.

I. Points to be observed:
a. Sterile means of collecting specimens.
b. Icing specimens up to time of examination.
c. Examination as soon after collection as possible.
d. Technique employed in bacteriological examination.

1. Specimen to be thoroughly shaken before examination.
2. Use of beef infusion media in preference to beef extract media.
3. Use of Slack method in preference to the Breed or Frost methods.
4. Bacteriological counts to be made as recommended by American Public Health Association, with magnifying glass, box, etc.

There are a number of other tests which a bacteriological laboratory is called upon to perform from time to time, but these are so varied that a description of them is almost impossible in the above form.

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# ACTIVITIES IN PUBLIC HEALTH MATTERS BY FEDERAL DEPARTMENTS OTHER THAN THE UNITED STATES PUBLIC HEALTH SERVICE.

Report of Committee to Conference of State and Provisional Boards of Health, June 6, 1919, at Atlantic City.

At the annual meeting of the Conference a year ago, your Committee made no report because the country, being engaged in the mightiest enterprise of its history, was not in a condition to lend its interest or sympathy to complaints or criticism, nor were the states and their departments of health willing to be diverted for an instant from their supreme task of doing everything in their power to win the war.

The war is now over, that is, the war in France and Flanders, and there is no longer any reason why this Conference should not consider certain conditions which threaten the efficiency and integrity of the regularly organized health agencies of the states and the Federal government.

While numerous governmental agencies in the discharge of their regularly ordered duties contribute indirectly to the promotion of the public health, with the exception of the Public Health Service, these agencies were organized for other purposes and would better be required to confine their activities to the carrying of them out.

As the result of the popularity of the public health movement, however, there has lately been a tendency for various bureaus and divisions to engage directly in sanitary work. Moreover, with the onset of the war and the recognition of additional health problems that would arise, this tendency was especially apparent among newly created war agencies. There was danger not only of their misjudging the proper scope of their own activities but of those of already established agencies.

Fortunately this tendency, as effecting health activities in relation to the war, was in part corrected by means of executive order of July 1, 1918, which reads as follows:

EXECUTIVE ORDER.

WHEREAS, in order to avoid confusion in policies, duplication of effort, and to bring about more effective results, unity of control in the administration of the public health activities of the Federal government is obviously essential, and has been so recognized by acts of Congress creating in the Treasury Department a Public Health Service, and specially authorizing such service "to study the diseases of

man and the conditions influencing the propagation and spread thereof" and "to coöperate with and aid state and municipal boards of health":

Now, therefore, I, Woodrow Wilson, President of the United States, by virtue of the authority vested in me as Chief Executive, and by the act "authorizing the President to coördinate or consolidate executive bureaus, agencies, and offices, and for other purposes, in the interest of economy and the more efficient concentration of the government," approved May 20, 1918, do hereby order that all sanitary or public health activities carried on by any executive bureau, agency, or office, especially created for or concerned in the prosecution of the existing war, shall be exercised under the supervision and control of the Secretary of the Treasury.

This order shall not be construed as affecting the jurisdiction exercised under authority of existing law by the Surgeon-General of the Army, the Surgeon-General of the Navy, and the Provost Marshal General in the performance of health functions which are military in character as distinguished from civil public health duties, or as prohibiting investigations by the Bureau of Labor Statistics of vocational diseases, shop sanitation, and hygiene.

WOODROW WILSON.

THE WHITE HOUSE, July 1, 1918.

The purposes of the above mentioned order would seem as applicable in times of peace as in war. Its provisions should be continued accordingly. Even though the undertaking of public health activities by miscellaneous bureaus or divisions not organized for this purpose may serve as an argument to increase their appropriations and stimulate their growth, such action is unfortunate as it discourages proper division of responsibility, encourages duplication, brings about confusion and lack of economy and ultimately actually retards growth of public health work.

While there should, of course, be no limitation of the beneficial effects to follow the legitimate activities of the various bureaus and divisions, their respective fields should be clearly defined by law and by precedent, and proposed legislation should aim at the proper correlation of these agencies in order that each would be a potential aid and not usurp the powers and duties of the others.

By a series of acts the United States Public Health Service has been established and developed thus far so that practically all of its activities are of a public health nature. It should accordingly be built upon and held responsible for the conduct of the Federal health administration, receiving such coöperation of the other governmental agencies as may be needed, particularly in view of its being provided with the Public Health Reserve and because of the relation it bears under the law to the state and municipal authorities.

In considering Federal health development, questions arise as to the desirability of consolidating or coördinating existing activities and agencies, and the need of creating additional ones.

The object should be to develop as efficient an organization as possible with which to meet all reasonable demands made on the Federal government for the protection of life and health.

When a new activity arises the agency to be entrusted with its conduct should be determined by the object primarily to be accomplished. Logically, it would be as proper to expect a public health agency to engage in agriculture in the interest of sanitation as an agricultural agency to engage in public health activities on the ground that outdoor life is conducive to health, practically all drugs come from the soil, and all foods raised are essential to human existence. Similar fallacious arguments might be advanced by different bureaus as an excuse for taking up any of the great governmental activities. As a result there would be endless confusion and the objects primarily sought would not be accomplished.

Since the whole field of governmental activity has already been surveyed and attempts made here and there to develop it, though at times with little sanction of law, questions of expediency must be taken into account in considering changes, but they should not be allowed to interfere with permanent development. Furthermore, the extent to which health activities of like nature in the several states have been entrusted to their respective sanitary agencies must be taken into account, for it is highly desirable that state and Federal activities should be developed along parallel lines, and the organizations conducting them should be as homogeneous as possible.

### CORRELATION OF AGENCIES.

In general, correlation may well be effected of those agencies which, while independent,

have a more or less common object and which can profitably exchange facilities and personnel. It has been urged from time to time, for instance, that the supervision of foods and drugs by the Federal government should be coördinated in the same department with its sanitary activities on the ground that the former has a public health bearing.

There would be certain undoubted advantages in this association although the main object of the supervision of foods and drugs is to prevent fraud. By their proper correlation these activities could undoubtedly be harmoniously conducted in the same department. Such action is not vital, however, to either group of activities, and should be attempted only after the most thorough understanding of the bureaus concerned.

Activities affecting the hygiene of childhood, likewise, might well be conducted in close relation. While the Children's Bureau relates essentially to social problems affecting children, matters of health are also construed as forming a part, with the result that duplication of effort and lost motion are likely later to follow. In many state and local governments these activities are conducted by their respective health organizations. In order to coöperate with them the Federal government's work should likewise be conducted. In doing so, no limitation should be imposed on social work on the one hand and sanitary work on the other. It is true, coöperation has thus far been had through arrangements on the part of the interested agencies. It would be well if this were specifically required by law, if it was found undesirable to transfer this bureau to the Public Health Service. The suggestion has been made for the creation of an interdepartmental committee which shall interpret existing law to the end that duplication, confusion, and waste shall be avoided; this would seem to be but added machinery to further stifle initiative and retard the evolutionary development of a well rounded out department of health, for it seems that the consummation of that hope may be achieved in no way.

### Consolidation of Agencies.

On account of their similarity it is desirable that certain activities and agencies be consolidated, for instance, the collection, interpretation and dissemination of vital statistics. With the recognition of the greater importance of public health, the value from a sanitary standpoint of records of births, marriages, sickness, and death becomes more and more evident. The machinery for their collection by the Federal, state and local governments should, therefore, be unified and made harmonious.

From an administrative standpoint it would seem advisable to transfer the Vital Statistics Division of the Census Bureau and combine it with the Division of Sanitary Reports and Statistics of the Public Health Service. The objects of these two divisions are similar; they both secure their data from the same agencies, and these data are the basis of all public health work.

The fact that mortality statistics are based on population statistics does not imply that they should be collected by the same agency, for they are not collected in the same manner. Furthermore, population statistics are of a very general nature and essential to much of the government's statistical work, including the preparation and use of morbidity statistics.

It is believed the systematic collection of morbidity and mortality reports, by the same agency, on the other hand would be the means of developing and stabilizing this Federal health activity by increasing the appropriations for its proper conduct. Furthermore, it would encourage like development on the part of states and municipal governments.

Measures instituted by the Federal and state governments for the development of mental hygiene and school sanitation should devolve on the duly constituted health authorities. Attendance at school is a compulsory occupation which has a profound influence on the health and progress of the rising generation. The duties of safeguarding it cannot properly be disassociated from other health work, involving as they do not only periodic inspections, but constant watchfulness in and out of the school room to prevent communicable diseases, and systematic studies to improve physical and mental hygiene.

All systematic investigations of nutritional diseases of man, authority for some of which have been granted or implied in various appro-

priation acts, should be performed by the Public Health Service through its laboratories of physiological chemistry. This is certainly public health work and should be under the same directing supervision as studies of beriberi, pellagra and similar affections being studied by that service. The Federal government should not be expected to duplicate organization and facilities for the study of problems of such a highly technical nature. Authority should exist, however, whereby the results of correlated studies would become available from every source possible.

Problems of health affecting industry especially should devolve on the duly constituted health agencies of both the Federal and state governments. These problems are many sided and recognized as requiring diverse observations and research of a high order. Furthermore, they must take into account not only the effect on health of places of employment, but environment outside the workshop and the habits and customs of employees in relation to health from childhood to old age.

In fact, health problems generally must properly be considered in relation to each other, and the organization whose duty it is to do so should be developed accordingly. In the last analysis the extent of this development will depend on available facilities, and any act which limits them from proper use will react injuriously.

While the tendency to duplicate and multiply health agencies in the Federal government during the past few years has been a matter of concern to the friends of public health, the same unfortunate condition has not been uncommon in the states, the result of attempted legislative enactment or of private or benevolent enterprise.

Perhaps the most recent and most unfortunate illustration of this latter condition is the effort on the part of the Division of Nursing of the American Red Cross to establish a Public Health Nursing Service in every county in every state, the work proceeding in most of the states without the knowledge of the regularly constituted local or state health authorities, and consequently without any effort being made or sought to secure their intelligent coöperation. The honorable and exalted place the American Red Cross rightfully has in minds and hearts of the American people gives to it an open door in almost every community and thus their failure to recognize and cooperate with the local health officials has a tendency to discredit these officers and to bring discord and confusion, where comity and unity of purpose would better serve both the community and those who are supposed to be working to a common end.

It seems to your Committee, that a "Get Together Committee" of the Conference might with profit to all concerned, be appointed to get in touch with the officials of such country-wide organizations that are doing local community work, such as the Red Cross and the National Tuberculosis Association, to the end that a better understanding and more thorough coöperation be established between them and the regularly constituted health authorities.

S. J. Crumbine, *Chairman.*
W. S. Leathers
J. W. Kerr.

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# ABSTRACT OF THE REPORT OF THE COMMITTEE ON PROGRESS OF FULL-TIME DISTRICT HEALTH OFFICER LEGISLATION.

Presented to the Conference of State and Provincial Boards of Health, June 6–7, 1919, at Atlantic City, N. J.

At as late a date as seemed practicable a questionnaire was sent by the committee to all state and district health authorities asking for information on certain points. These included new laws relative to full-time district health officers, and if such laws had been enacted, the provision of such laws; the number of full-time district health officers employed in the state and their salaries; the agency paying their salaries; whether or not the

entire state or province is covered by the district health officer plan, and if not, what system of health officership is generally employed throughout the state; together with information as to the degree to which the plan may be considered satisfactory. Pending legislation was included in the questionnaire.

Fifty-three questionnaires were sent out and replies were received from all states, provinces and districts, Kentucky, Oregon, Tennessee, Washington and the Philippine Islands excepted. As was to be expected in some instances the information was indefinite and unsatisfactory, and in some cases details were left to be filled in at some later date.

In only seven of the states or provinces have new laws been passed since May, 1918, these being Alaska, Arkansas, Delaware, Ohio, New Mexico, Vermont and West Virginia. Six other states had passed laws of this character before May, 1918, so that the number of states which have shown progress within three years in the direction of district health officers is twelve. In this connection the committee notes that in a considerable number of states General Assemblies are now in session, and it is not unlikely that other laws will soon be passed.

The Ohio law, the most important of the year, provides that each county and each city of more than 25,000 population must employ for full-time service a health officer, a public health nurse and a clerk, while in addition the State Health Department is provided with eight district health supervisors, who were to have begun their duties on July 1, 1919. The salaries are to be, for county and municipal officers, from $2,000 to $6,000 a year, paid from local funds; while the district supervisors are to receive from $2,000 to $3,000 a year, paid by the state.

In Vermont a bill has been passed providing for the employment of ten full-time health officers who are to receive a salary of $2,500 a year and traveling expenses, the law becoming effective on July 1, 1919.

The reports from Arkansas and West Virginia indicate the passage of new full-time health officer legislation, but are not definite, and lead to the inference that the laws will provide for local and not for district health officers. The West Virginia law authorizes a three-mill tax for the employment of full-time health officers, while the Arkansas report states that satisfactory applicants have not been obtainable.

The report from Alaska states merely that a law has been passed.

In New Mexico the State Health Department has just been created under an act that authorizes the employment of district health officers.

About twenty states and provinces report the employment of full-time district health officers, ranging from one to fifteen, but the committee suspects a misconception on the part of the informants, and some states having only full-time local health officers are included in the list. It is certain, however, that in twelve states, provinces or territories, full-time district health officers are employed with salaries ranging from $1,500 to $4,000 a year.

During the year there has been some progress of very satisfactory nature, but on the whole the situation throughout the nation remains in much the same condition as a year ago. In twenty-five out of the forty states that have replied the present method of health administration is declared generally unsatisfactory.

Comments and criticisms received in the questionnaires indicate that increased thought is being given to the district health officer plan. Out of 36 references to the matter, 19 approved the district health officer plan, 10 gave a modified approval and 7 looked upon it with disfavor. Some of the last-named are small states which regarded the district plan to be unnecessary, but some of the larger states prefer one central administration. Opinions in the matter are diametrically opposed one to another. The plan is generally approved by the states employing it, and the criticism comes largely from states where other administrative methods are in force.

From this divergence of opinion the committee expresses a belief that the details of the district health officer plan are not as generally or as clearly understood as they should be.

The Report was presented by

C. St. Clair Drake, M. D.,
*State Director of Public Health, Springfield, Ill.*

# REPORT OF THE COMMITTEE ON TUBERCULOSIS POLICY.

Presented to the Conference of State and Provincial Boards of Health, June 6–7, 1919, at Atlantic City, N. J.

This committee, consisting of Doctors H. M. Bracken, John T. Black, and A. T. McCormack, and Dr. F. C. Smith of the U. S. Public Health Service as consulting member, made a report to the Conference at its meeting in 1918, presenting at that time certain resolutions. The Conference was requested to delay action on the resolutions for one year, and to arrange that a committee of five be appointed from the National Tuberculosis Association to have a conference on these resolutions in order to get both the clinical and administrative viewpoints on the proposition.

Dr. George T. Palmer, assistant director of the Illinois State Department of Public Health, was asked to bring this matter to the attention of the National Tuberculosis Association. Doctor Palmer did so, and the committee was appointed consisting of Dr. H. E. Dearholt, executive secretary of the Wisconsin Association; Dr. J. W. Coon, of Stevens Point, Wis.; Dr. Wilson Ruffin Abbott, of Springfield, Ill.; Mr. W. D. Thurber, executive secretary of the Illinois Tuberculosis Association, and Dr. W. O. McMichael, Asheville, N. C.

The resolutions as submitted last year to this Conference are as follows, with additions suggested by Doctor Palmer and his committee, the suggestions being represented by those portions of the resolutions which are *in italic type*. With these additions the committee herewith submits its report.

WHEREAS, Tuberculosis is recognized as a communicable disease,

WHEREAS, This disease is usually spread by the presence of the tubercle bacillus in the sputum of those suffering from the disease:

*Therefore, Be It Resolved That*

1. Tuberculosis is a social as well as a sanitary problem and its control should be liberally provided for by the state.

2. Tuberculosis should be a reportable disease to the state health authorities.

3. The removal of an open case of tuberculosis from one state to another should be carried out only under the reciprocal notification plan of this Conference. *The removal of such a tuberculous patient from one health jurisdiction to another in the state shall be carried out only under the reciprocal notification plan and under rules approved by the State Department of Public Health.*

4. Every tuberculous patient should be under sanitary supervision. This does not mean that the patient should be under restrictions, but it does mean that the sanitary authorities should satisfy themselves as to whether the individual is living in such a way as not to endanger others. *The physician should be required to advise the patient or his family as to the nature of his disease and to advise the family as to the means of avoiding infection. The physician or local health officer should be required to place in each household literature on the cause and prevention of the disease.*

5. The early case of tuberculosis should be cared for with the intent of bringing about a recovery. There is no danger to others from such a case so long as it remains a closed case.

6. The sanatorium is the best place for the early case of tuberculosis. The purpose of the sanatorium is:

(a) The treatment of the individual, which should comprise not only medical supervision but also dietetic and psychic.

(b) The education of such individuals as to their proper mode of life.

(c) The control of the disease.

7. The "open" case of tuberculosis should never be left at home in association with young children. The open case can be cared for at home if it is possible to prevent the association with children.

8. The sanatorium is the best place for the "open" or advanced case for the purpose of

(a) The control of the disease.

(b) The care of the patient.

9. The "open" case of tuberculosis should be cared for

(a) In order to prevent the infection of others.

(b) In order to bring about, if possible, the recovery of the patient.

10. *Institutional provision should be made for two classes of tuberculous patients:*

(a) *Hospitals for advanced cases.*

(b) *Open type sanatoria for early cases.*

11. *The erection and operation of all public tuberculosis sanatoria should be under the general supervision of the State, either through the State Department of Public Health, or a special state board or commission.*

12. The sanatorium should not be considered primarily either a hospital or a boarding house. It should be so conducted as to make the patients satisfied and willing to stay. *It should be borne in mind that happiness is essential to the recovery of the tuberculous.*

13. If tuberculous soldiers or sailors are discharged from service the health officials of the

political division to which they are going should be advised of the fact in order that they may be properly cared for at the point of destination.

14. Cases discharged from a sanatorium should be followed through social service standardized under the board of health of the state. *To this end, State Departments of Health should develop and maintain divisions of public health nursing and social service.*

15. A special institution should be provided to which the incorrigible tuberculous may be committed.

16. *That, inasmuch as early diagnosis is essential to cure, state health departments shall endorse the establishment of free tuberculosis dispensaries to be conducted by governmental or extra-governmental agencies and shall establish standards for such dispensaries.*

17. *On account of the fact that tuberculosis causes one-tenth to one-eighth of all deaths and a very large percentage of preventable illness, it is recommended that all state health departments shall maintain separate divisions of tuberculosis under the direction of a chief who is experienced in both the medical and social aspects of the disease.*

Dr. Arthur T. McCormack indorses this report with this addition:

I am rather inclined to add that recovered cases should be trained in some vocation that tends to promote their well-being. One of the two frequent results of sanatorium treatment is that the patient is kept idle for so long a time that he never gets back to work again and becomes a permanent infective. The resolutions are so good, however, and cover this point by implication, that it would hardly be worth while to go through the course of securing an amendment.

H. M. Bracken, M. D.,
John T. Black, M. D.,
A. T. McCormack, M. D.,
*Committee.*

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## HISTORY REPEATS ITSELF.

### A Vaccination Episode.

In view of the challenge of Dr. Fraser to Dr. Hill to test the efficacy of prophylactic treatment against germ diseases, a matter which has recently been reported in the newspapers, it may be interesting to recall an occurrence in Boston of about twenty years ago, which concerned Dr. Immanuel Pfeiffer and one of the health commissioners. At that time the Health Department was engaged with an outbreak of smallpox and, in accordance with the law, was enforcing vaccination and the isolation of all known cases.

Dr. Pfeiffer, a man of from fifty to sixty years of age, of striking vigor in appearance and in speech, was interested in a publication which had taken up the denunciation of vaccination and the germ theory in general, claiming that all vaccination was useless and even dangerous. He was also numbered prominently among the speakers in favor of a bill then before the Massachusetts Legislature, to repeal the laws enforcing vaccination, etc. As the result of some newspaper discussion, Samuel H. Durgin, M. D., then chairman of the Boston Board of Health, offered through the press to any local physician who was in opposition to vaccination, an opportunity to show his good faith in his fight, and to test his belief in the impotency of vaccination by allowing him to expose himself to smallpox at the hospital of the department.

Within a short time Dr. Pfeiffer called at the Health Department office and requested permission to visit the smallpox patients. He was offered vaccination, but refused it.

"I gave him permission to go to the hospital," writes Dr. Durgin to the Journal, "and he went there accompanied by a competent medical officer. He saw the patients to his satisfaction, and returned to the city. He continued to decry vaccination and kept up his insistence for legislation against it. At the end of twelve days, however, the normal time of incubation, he was missed from his publishing office and from the hearings at the State House.

"He was located in a town near Lowell, and was there visited by two of the Boston Board of Health diagnosticians, who found him severely affected with smallpox. He was attended by an able Lowell physician, who confirmed the diagnosis. The patient recovered and bore thereafter the characteristic marks of the disease."

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**Do Not Forget New Orleans—October 27–30.**

# EDITORIAL SECTION

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## HEALTH CENTERS.

Coöperation and coördination, the themes of Dr. George E. Vincent's timely address at the Chicago meeting of the Association, are coming more and more into our health administration. On every side there are evidences of a better appreciation of the "pull together boys" spirit. These are shown in recent legislation and are even more strongly set forth in the health movements within cities.

In the category first named are the laws which permit adjoining communities to unite in the development of certain kinds of health movements. A very recent example of the results of such legislation is in Ohio, where three counties already coöperating have invited two others to join them in the erection and maintenance of a sanatorium for tuberculosis patients.

Health centers are the manifestation and result of coöperation within the municipalities. The Binghamton health center (New York) is one that presents an example of a good many activities joining in very harmonious fashion towards important results. Here the local humane society, possessed of a home in which there was space not demanded by its own administration, offered its spare room to other activities. The result has been that under one roof there are assembled the original society, a mental clinic cared for by the local state hospital, a dental clinic cared for by the local dental society, a tuberculosis clinic cared for by the county tuberculosis hospital, two clinics under the city health department and six other clinics of the local city hospital. Affiliated with these are the Red Cross, a boys' club, a charity club, an employment bureau and city and county probation offices. Altogether eleven activities are brought thus closely into contact. Such contact means the elimination of much lost motion, the avoidance of a great deal of overlapping, and a general unity of purpose and efficiency of action that are distinctly in advance of the methods usually employed.

The New York State health authorities have recognized the value of the health center, have declared their interest in it and have evidenced their intention to aid in the development of such centers. An issue of the *Health News*, the popular official publication of the State Department of Health, that of February, 1919, is largely given over to the subject. General plans have been prepared and information assem-

bled that will be of interest to communities desiring to organize health centers. The Department realizes that different communities will need modifications of any standard plan, and offers its aid and advice in any specific case.

New York is not alone in perceiving the value of this method of coöperation, and in other states movements of kindred nature are under way. Everywhere they have proved to be a means of coördinating the work of organizations which have for their object the betterment of the health of the people. This public health improvement, it should not be forgotten, in its modern aspect includes something of the betterment of the social and economic conditions, as well as popular education in the simple principles of hygiene. Health centers have a great future before them.

## PAPERS AT THE ANNUAL MEETING.

As the time approaches for the annual meeting of the Association, and in truth it is only eighty days away, the thoughts of every one turn to the papers to be presented. At large meetings these of course vary in quality, but even when as good as have been the articles from the Chicago meeting that have been published in the JOURNAL, they may be made even better by a little thought. There is one injunction that the JOURNAL would like to lay upon the members engaged in the preparation of papers to be presented at New Orleans, and that is to have them pointed very directly at something. There is hardly anything more discouraging to the man who attends the meetings than to be obliged to listen to paper after paper dealing with broad generalities which have oftentimes too remote an application to the purpose for which he has come to the meeting. This purpose is to equip himself for better service to his home community and other communities which may call upon him.

There are certain types of papers which find fault. They decry present conditions, they call for improvement, but they fail to present any constructive ideas or to name anything to take the place of that which they would pull down. Here is a suggestion for the coming meeting, that there be full measure of papers of the "What-to-do-and-how-to-do-it" type, and fewer that deplore existing conditions and wait with folded hands for the milennium. Let the meeting be marked by the specific messages which the experience at home and abroad the past two years has taught, messages not merely of words, but of living forceful thoughts and suggestions.

There is much in the problems of health administration for live thinkers. At the Chicago meeting it was suggested in a resolution that a request be made for especial consideration of such practical topics as, "The Attitude of Appropriating Bodies towards the Public Health," or "Means of Securing Appropriations Adequate to the Public Health Needs." "Tangible Methods of Securing Coöperation between Public Spirited Bodies," should be another practical topic.

The meeting at New Orleans will of course be a great success, but it in particular assembles factors that can serve to make it a gathering of extraordinary value to the members of the Association. Experiences from every quarter of the globe will be available, and from every walk of life. The Army and Navy will have their stories to tell, the states and cities visited can speak of conquests and combats in sanitation and against disease conditions, and every one will be keyed up by the attention that has of late been focused on public and private health. The hearers will have been already well informed, and it behooves the speakers to add to that store of knowledge. Short, "meaty," addresses which have their point fully in view, will add to the available stores of information and will help make the occasion memorable.

## CORRECTION.

In Chart I of the article on "Food Inspection and Food in Relation to Public Health" by G. Koehler, M. D., appearing on page 418 of the June, 1919, issue of the JOURNAL, the figures designating the typhoid fever and infant mortality rates were inadvertently reversed in the diagram. Those appearing on the right-hand side of the upper graph should be inserted below, and vice versa.

## NEW ORLEANS.

He who visits New Orleans at the end of October, when the members of the American Public Health Association are scheduled to gather in that interesting Southern capital, will have a feast for the eye as well as a delight for the mind. Here the eighteenth century shakes hands with the twentieth, and, as in some of the charming old capitals of Europe, there is but the need of a score of steps to turn back the pages of time a couple of hundred years. Resistant to the inroads of progress, the older structures have remained, the Cabildo, for example, in which sat the Spanish councillors who made the laws for the province of Louisiana. Here was consummated the purchase of the Louisiana territory, now divided into more than a dozen states of the Union, and in the main "sala" the representatives met whose principals were Napoleon Bonaparte and Thomas Jefferson. It is a fitting use for such a historic edifice that the Louisiana State Historical Society holds its sessions in the great hall. Beside the Cabildo stands the Cathedral, which at the moment is nearing its centennial.

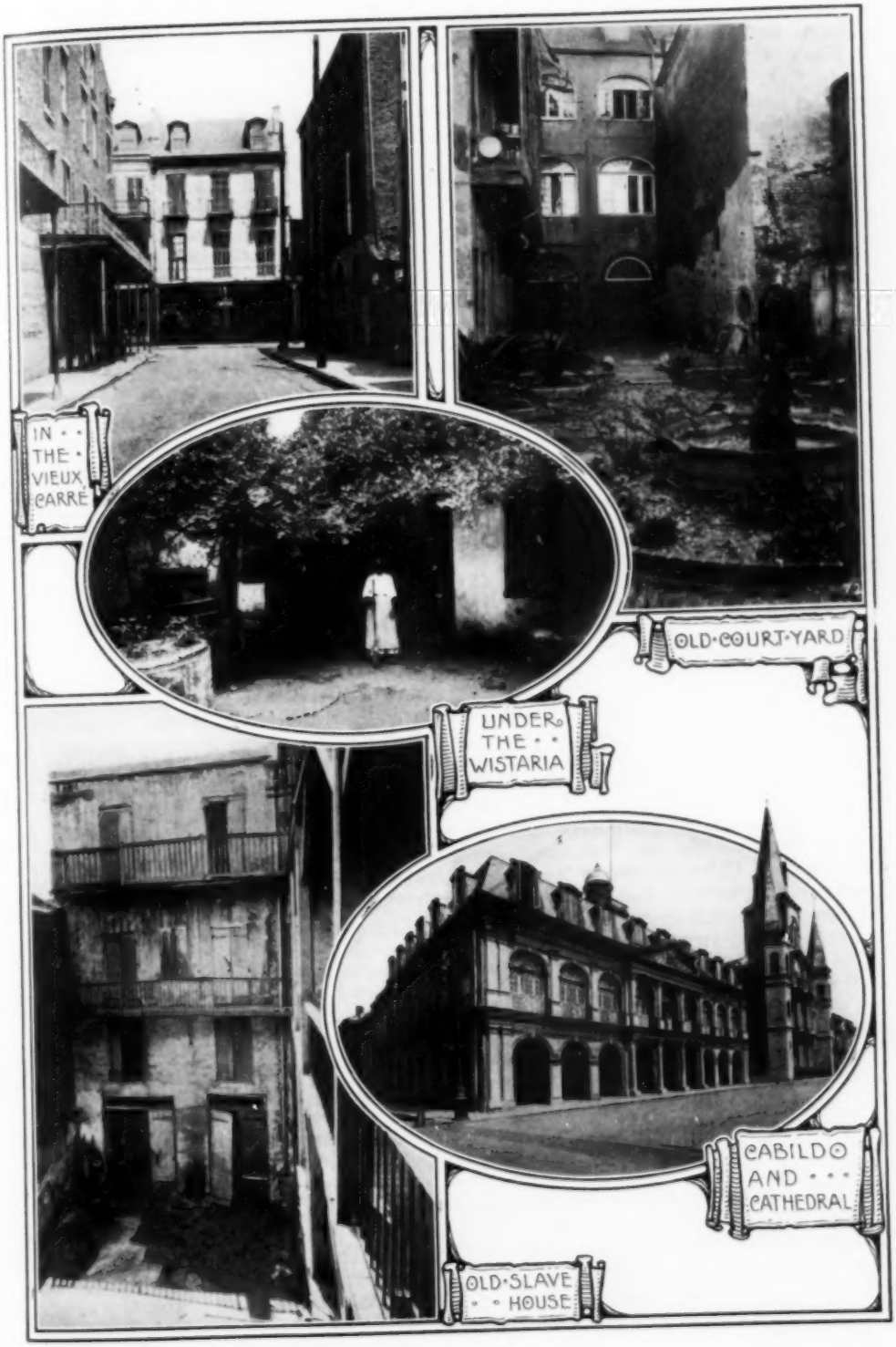
In the old quarter, the French section, the relics of days of long ago persist. Here are the close-shuttered, balconied houses, which have a history of slavery; there is the quiet paved street with its ancient houses, in touch with the present day by the sign, "One-way Street," while on every hand there is the romance of a tropical, out-of-doors, flower-embowered city. Quaint archways lead from the streets, through which one catches glimpses of domestic life, the well nourished Southern "Mammy" in the shade of the soft-hued wistaria or the more florid courtyard with its reminders of former beauty. Here a fountain plashes in the filtered sunlight, there a bed of posies gleams in the brilliance of noon, above a balcony tells perhaps the story of some local Juliet, while luxuriant shrubbery, roof of tiles, shuttered windows and the presence of flowers, breathe picturesqueness and antiquity,—the peculiar charms of this ancient quarter of this old city.

New Orleans has especial interest for the health official and student of health administration, for here the importance of the control of infectious diseases became a subject of public interest at an early date. Clippings from newspapers of nearly seventy years ago show that disease conditions were a matter of almost continual popular discussion. Some of these notices are of interest in these days with completely changed notions of therapy and advanced medical ideas. In an editorial of August, 1853, the New Orleans *Picayune* discusses the African origin of yellow fever. The idea that the slaves brought the fever with them when imported, is discussed. "It is a common error," the editorial runs on, "to confound the African fever with yellow fever; they are as distinct and different as the country fever of Charleston, the congestive fever of Mississippi, and the Chagres fever of Central America are from veritable yellow fever, such as now prevails in New Orleans." That the condition was one wherein a discussion of the kind was to the purpose is evidenced by the three months' report of interments in the cemeteries, 5,032 deaths from yellow fever out of a total of 7,247.

The editorial in question takes notice that the slaves when shipped are of course fine specimens and in good health, otherwise it would be a waste of money to transport them, and presumably acclimated and inured to African diseases, while their quick deaths after arriving in this country suggests a local cause. Forty days being the shortest passage from Africa to New Orleans, and with a fever so contagious as is yellow fever, it is argued that "every soul on board would be stricken if it were on shipboard at the start."

"But it is a notorious fact," concludes the editor, "that the fever breaks out only on the approach of the slaver to our shores. Hence it would appear that our own atmosphere contains the elements necessary to vigor and life of the contagion, even admitting the hypothesis that such contagion may be brought by ships."

These were dark days in the Southern cities with the dreadful fever in New Orleans. A sympathetic editorial notes the progress of the plague. "Still onward stalks the direful pestilence in New Orleans," it begins. "Every day seems to give it new


IN THE VIEUX CARRÉ
OLD COURT-YARD
UNDER THE WISTARIA
CABILDO AND CATHEDRAL
OLD SLAVE HOUSE

strength and vigor. Increased victims seem to sharpen rather than glut its appetite. It leaps over all barriers and spurns all opposition. It levels alike the lofty and the lowly, the rich and the poor, the votaries of vice and the followers of virtue, the ignorant and the imprudent, the gifted and the strong—all alike are swept away and gathered into the common harvest of death." For the week ending August 14, 1853, the number of victims was 1,369, the current week promised to be equally large in its figures and the total of the month was thought to be such that it would make it forever notable in the annals of the city. Comparative figures with the great plague of London showed that out of 500,000 the plague slew 60,000 in a year, while the New Orleans fever was taking 4,000 a month out of a total population of not over 80,000 and "a population liable to the disease of not over 30,000."

By the first of September there were symptoms of abatement, August 31 having 110 deaths, as against a daily rate of 200 to 250 deaths earlier in the year. In the editorial statement that sets forth this fact there is the caution, "We again advise our friends to be watchful and prudent—the wind, in its present quarter, northeast, is a great encourager of yellow fever; keep out of its influence as much as possible, and sleep with your windows down."

It should be remembered, however, in reading this advice, that it was before the days of screened houses, and open windows really meant a means of access for the germ-bearing mosquitoes.

By September 22 the number of victims to yellow fever was less than the figure for other causes. The hope at that time was for "an early and heavy frost, which shall extirpate all vestiges of the late pestilence and render the air wholesome, bracing and healthy."

One must not forget that in 1853 the well-rounded health city departments that are to be found on every hand today, had not had their beginnings. It was a time when Boston had a normal smallpox rate of fifty to sixty cases a year with occasional years of a couple of hundred. The great outbreak with its thousand deaths from this disease which was the virtual starting point of the Boston Health Department was in the early seventies, or twenty years later than the time referred to in New Orleans. But in the fifties the Southern city had already in operation its municipal board of health. There have been some interruptions to its continuous functioning, but it did exist, and its importance was strengthened by the yellow fever outbreaks in the education that these even then gave to the people.

One evidence of the simplicity of public health arrangements in the early fifties is to be judged from the fact that the daily announcements of mortality during the outbreak in New Orleans were in terms of interments in the different city cemeteries. The weekly reports likewise were compiled from the same sources, it being apparently the case that certificates were there secured which are usually now given out from some central registry office.

The stickler for classification of causes of mortality will be interested in that of these older days. The larger groups were styled, epidemic, endemic, monoxysmal, uncertain seat, nervous system, respiratory, circulating, digestive and locomotive systems as separate sections; and besides old age, still-born, casualties, exopathic and esopathic. Tetanus and lockjaw appear in the list together as separate maladies. The exopathic victims are put with directness, one of the lists reading: "stabbed, one; suffocated, one," while the esopathic victims, two, are credited to delirium tremens. There are concessions to the large French population in such causes as Souff. du Cerveau, mal au machoir, and affection pulmonique, while the whole listing is a study in the evolution in vital reports.

In the midst of the dreadful week of August 21, 1853, "Citizen" writes to his newspaper in New Orleans suggesting a campaign of cleanliness and notification, combining with this what was inseparable in the earlier days,—charity. "Allow me to make a few suggestions," the letter begins, "which if carried out would be of great assistance to the Board of Health and the Howard Association, and enable the needy in all parts of the city to receive prompt aid, save many lives and aid vastly in ridding

the city of ostensible causes of disease." He goes on to outline a plan of volunteer inspectors, one at least to each side of every block of every street, who shall report the needy, the sick, take subscriptions, see that no nuisance is permitted to remain and "see that tar is burned every night and chloride of lime is distributed in all confined places, outhouses, etc." The further suggestion is made that it is of little use for ten or a dozen to clean their premises if the neighborhood remains dirty. "To have a clean city the whole population must act," is the concluding phrase of this New Orleans man in advance of his times, who put his finger sixty years ago on the nub of the whole question, and outlined matters like notification and the associated charities that are a vital part of the programme today. He was a pioneer of whom New Orleans may well be proud.

The visitor to New Orleans with his fellow members of the A. P. H. A. will find that the city and the state have lost not one whit of their old-time interest in public health. There are some handicaps, for where there is a negro population or a large foreign one, there is a distinct health risk. But New Orleans has taken up the major problems of health betterment with spirit and good sense. The enormous work in the fight against the plague has remodelled certain sections of the city where splendid rat-proof mercantile structures now prevail. It has gone steadily at the problem of malaria conquest and with success. It has vigorously attacked its mortality rate with the result that the past seventy years has seen a decline from 50 to 60 per thousand of population, till in the decade ending in 1909 the figure was 21, and in the intervening years it has been still lower, mounting again, in common with all the cities of the country, on account of last season's influenza.

The record of New Orleans in the improvement of its own health is notable. The record for hospitality has suffered no decline. The citizens know well how to entertain their friends, and preparations are on foot to make the visitors of the A. P. H. A. acquainted with the beautiful city in such fashion that they will not cease to talk of it in after years.

New Orleans in its picturesqueness, its health story and its welcome to visitors calls for a record meeting, one worthy numerically of representing the great national health association that is to assemble there.

The city is indeed well described in its aspects of gaiety and seriousness in the apt stanzas of Berton Braley in a recent *Saturday Evening Post*, which run thus:

NEW ORLEANS.

Dark, languorous, with heavy-lidded eyes
That glow and smolder with a constant fire,
She stirs men's hearts with glorious desire
By glances turned upon them waywardwise;
She is incarnate carnival; she plies
Her cavaliers with wine of mystery;
Under her mask they know not what there lies,
But linger, rapt, enchanted, till they see.

No disillusion greets them when she lifts
That dainty mask, for she is fair and kind.
But take her not for one who idly drifts
Through lazy days with purpose undesigned,
For though her eyes are warm, and warm her lips,
Her brain is building towers, ports and ships!

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**Why not set down that idea that is in your head about the device for the A. P. H. A. insignia? Send it today. You may get a prize. See June Journal, page 527, for particulars.**

# ASSOCIATION NEWS

## HELP EMPLOYMENT BUREAU.

**In order to help relieve the shortage of sanitarians, free help-wanted announcements will be carried in this column until further notice. Copy goes to the printer on the fifteenth of each month. In answering keyed advertisements, please mail replies separately.**

**The Health Employment Bureau also sends lists of applicants to prospective employers without charge.**

Full-time, registered nurse for Venereal Disease Clinic in North Carolina. Salary to start, $100 monthly. Address L. E. C., No. 255, care of this JOURNAL.

Young physician for county health work in South Carolina. For information write Dr. L. A. Riser, 1013 Palmetto Building, Columbia, S. C. (H. E. B No. 202).

In the south, three County Directors for full-time rural health work, Annual salary $2,400 and necessary traveling expenses. Young physicians, thoroughly prepared in preliminary and medical education, preferred. Address H. E. B. No 276 care of this JOURNAL.

Full-time health officer for executive head of Health Department in North Carolina. Graduate public health man or trained ex-war sanitarian with laboratory knowledge preferred. Salary $2,000 per year or more if specially adapted. Address H. E. B. No. 258, care of this JOURNAL.

Public health nurse wanted for Marion Co., Kansas. Salary $100 per month and traveling expenses. Address Dr. J. J. Entz, Hillsboro, Kansas. H. E. B. No. 261.

In West Virginia, an experienced laboratory worker for making Wassermann tests, etc. Address H. E. B. No. 262, care of this JOURNAL.

In Missouri, two assistants trained in bacteriology. One to do Wassermann tests and other serological manipulations; and one with training in the prevention of venereal disease, to assist in course in hygiene for the training of teachers. Salary $2,000 and $1,800 per year. Address H. E. B. No. 264, care of this JOURNAL.

Research worker, experienced and proficient in bacteriology and serology for an investigation which will continue for at least two years. Salary $2,500. Address No. 266 T. J. C., care of this JOURNAL.

The City of Portsmouth, N. H., Board of Health desires a graduate nurse with public health training. Salary $100 per month. Excellent field for the right person. Address J. W. H. No. 268, care of this JOURNAL.

Public health nurse in Oskaloosa, Iowa. Salary $1,200—$1,500 per year according to qualifications and ability. Address W. E. M. No. 270, care of this JOURNAL.

## ASSOCIATION INSIGNIA.

A number of replies have been received at the secretary's office in answer to the prize offer for designs for Association insignia. This is a matter that ought to be of wide interest. The details are given in the July JOURNAL, page 527, and any member of the Association may have the rare opportunity of furnishing the design for the official seal and other insignia of a great national institution. The offer remains open till September 1.

## MEMBERSHIPS.

The influence of the drive for new members has by no means passed away, and is, and will continue to be, a factor of importance in the progress of the Association. The total of new members admitted between the middle of March, the time when President Frankel's letter was sent out, and July 26 was 957. Of the members who have been very active in persuading their fellows to join the Association Dr. J. A. Kappelman is first, and is continually increasing his lead, having now 60 new members to his credit. Of those in the list of 10 or more, Mr. Mayo Tolman has increased his number to 16. A new comer into this field is T. Eben Reeks, M. D. of New Britain, Conn., who at a recent meeting of the health officers in his state was exceedingly successful in presenting the advantages of the A. P. H. A. Altogether Dr. Reeks has sent 45 names, and subtracting those that were registered at the meeting leaves at least 14 that have been due to his personal effort alone. Such workers are an example to their fellows and give evidence that there are many men in every locality who would be likely to join if the matter were brought to their attention.

## HOW THEY DID IT.

In the *News Letter* for June the story is set forth of how Dr. J. A. Kappelman succeeded in securing 40 (now 60) new members for the Association. A number of letters have been sent to the men having the highest scores in the campaign for members, with the idea that there might be gained in this way some insight into an effective manner of presenting the advantages of membership. Dr. Kappelman's answer divulged a basis of confidence in his object and in himself. He had clear reasons to set forth why it would be of advantage to join the A. P. H. A., and he was able to state them so straightforwardly that more than half a hundred of his friends yielded to them.

Mayo Tolman of Charleston, W. Va., writes that he is a member of eight or ten national organizations and has found that no one of them offers service or material of a value equal to that offered by the American Public Health Association. The money invested has brought a better return than any expended in any other way. "So firm a believer am I in the power of this association to do good," he writes, "that I am willing, in fact, I am anxious, to give all the personal service of which I am capable. Entertaining such an attitude of mind it is a very simple thing to go to a man and persuade him to join the organization. You do not have to say a single thing that you do not absolutely believe, in order to praise the Association. There must, *perforce*, be a ring of genuineness in one's voice that will impress itself upon the listener.

"With me the argument outside of the actual, tangible advantages of personal character, have been largely those of patriotism. I have called prospective members' attention to the deplorable health conditions revealed by the draft, and how special appeals have been sent out by the offices of the Army, the Navy and the Public Health Service, that conditions contributing to such ill health be removed."

Mr. Tolman sounded the praises of the JOURNAL to his "prospects," as the final argument, noting that it is one of the best, if not indeed the very best, agencies for keeping in touch with advances in public health.

Mr. Willard E. Ward, Agent of the Board of Health of Brookline, Mass., replies in this fashion: In obtaining members for the A. P. H. A., I had in mind the value of my association with the organization, the necessity as a committee member of seeking information outside the Association from leaders in lines of endeavor associated with public health control, and my duty as a public health official to do my "bit" towards building up and broadening out an association of such value to the nation.

I extended the invitation only to those whom I knew would make good members, and to such persons it was necessary only to set forth the objects of the Association and the benefit accruing to themselves in being identified with it. This is emphasized by the fact that of the persons interviewed, 83.3 per cent responded. I am proud of the personnel of these new members, each one of whom is a man of broad vision and intimately connected with public health activities. I feel that we should be even more zealous to have our new members measure up to the high standard already established.

Dr. W. H. Robin of New Orleans answers the question in this way: "Getting members is not so difficult after all. My experience shows it to be merely a case of 'popping the question.' Though there are no statistics available to prove it, I believe there are as many men willing to say 'yes' to a membership proposal in the A. P. H. A. as there are girls to say 'yes' to the right man in a marriage proposal.

"I am glad to see the membership list shooting upwards. It wouldn't surprise me in the least to see it speed up faster, as American Public Health is the greatest asset of our country today, and a good way to show appreciation of this is by becoming a member of the A. P. H. A."

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**A Word about Dr. John A. Kappelman.**—Every one who has kept track of the drive for membership, and who has taken note of the remarkable record of Dr. John A. Kappelman (60 new members up to July 26th, 1919), will be interested in some facts with reference to this energetic worker. His present position is that of District Health Officer, Illinois State Department of Health, with headquarters at Springfield, and activities taking him all over the state. He has progressive notions, however, and is quite ready to move up to higher stages in his profession.

Dr. Kappelman, not yet forty years of age, is a product of the Evanston, Ill., schools; a graduate with the degree, B. S., of Northwestern University, class of 1903; and a physician with his degree of M. D. from Northwestern University Medical School conferred on him in 1907.

For a year following graduation Dr. Kappelman was an interne and staff attendant at the Cook County Hospital, Chicago; and then he entered into the practice of his profession—eight years at Evanston and one at DeKalb—and at the end of that time into the service of the Illinois State Department of Health, a position secured by competitive examination before the Illinois Civil Service Commission.

The past two years Dr. Kappelman has been District Health Officer in Illinois, broken by seven months of absence for military service. The latter included experience as assistant camp surgeon, with the rank of captain, at Camp Dodge, Iowa, while during the influenza outbreak he was chief sanitary officer at the base hospital of this camp.

His experience in state work has been along the lines of diagnosis and epidemiology of communicable disease, organization of community health service, emergency relief work, laboratory work, child welfare campaigns, school medical inspection, dairy inspection, occupational diseases, etc.

One can realize now how it was that Dr. Kappelman was so successful in securing members, for he had a sympathetic line of attack on his "prospect," no matter what might be the special occupation of the latter.

# LIST OF NEW MEMBERS

PROPOSED FOR ELECTION TO THE

# A. P. H. A.

FROM JUNE 25 TO JULY 21, 1919.

| Sponsors | —and— | The New Members<br>Whom They Introduced |
|---|---|---|
| (States arranged in alphabetical order) | | |
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| MAURICE M. SEYMOUR, M. D., Regina Saskatchewa | | F. JOHNSTON, M. D. C. M., Perdue, Saskatchewan |
| W. W. BIERCE, Torrington, Conn. | | H. B. HANCHETT, M. D., Torrington, Conn. Health Officer |
| T. EBEN REEKS, M. D., New Britain, Conn. | | G. N. LAWSON, B. A., M. D., Middle Haddam, Conn. Health Officer. |
| | | F. B. BRADEEN, M. D., Essex, Conn. Health Officer |
| | | C. S. HURLBUT, Rockville, Conn. Health Officer |
| | | W. B. BEAN, M. D., Rockville, Conn. Health Officer |
| | | DAVID A. FOX, M. D., Clinton, Conn. Health Officer |
| | | HOWARD T. FRENCH, M. D., Deep River, Conn. Health Officer |
| | | J. BANKS JONES, Andover, Conn. Health Officer |
| | | A. L. HURD, M. D., B. S., Somers, Conn. Health Officer |
| | | C. E. BUSH, M. D., Cromwell, Conn. Health Officer |
| ARTHUR LEDERER, M. D., Washington, D. C. | | IDA A. BENGTSON, S. M., Washington, D. C. Bacteriologist, Hygienic Lab., U. S. P. H. S. |
| ROBT. E. NOBLE, Washington, D. C. | | LLOYD L. SMITH, Base Section No. 5, A. P. O. No. 716 Colonel, M. C. |
| THOMAS PARRAN, Jr., M. D., Washington, D. C. | | CARL JOSEPH HARRIS, M. D., Washington, D. C. Asst. Med. Advisor, U. S. Bureau War Risk Ins. |
| HARRY W. REDFIELD, Ph. D., Washington, D. C. | | GEORGE G. DeBORD, M. S., Washington, D. C. Bacteriologist |
| M. F. HAYWOOD, M. D., Atlanta, Ga. | | GRADY A. LEE, Atlanta, Ga. Laboratory Asst., State Bd. of Health |
| C. ST. CLAIR DRAKE, M. D., Springfield, Ill. | | THOMAS J. BROPHY, Springfield, Ill. State Dept. of Public Health |
| JOHN A. KAPPELMAN, M. D., Springfield, Ill. | | A. J. CLAY, M. D., Hoopeston, Ill. Health Officer |
| | | O. P. KLOTZ, M. D., Hoopeston, Ill. |
| | | W. R. ROBERTS, M. D., Cisana Park, Ill. Health Officer |
| | | D. A. SMITH, Cisana Park, Ill. Supervisor, Fountain Creek Township |
| | | R. F. VanDoren, M. D., E. Lynn, Ill. Health Officer |
| | | H. P. MOULTON, M. D., Petersburg, Ill. Health Officer |
| | | A. D. MILLER, M. D., Sullivan, Ill. Mayor |
| | | J. F. LAWSON, M. D., Sullivan, Ill. Health Officer |
| | | W. P. DAVIDSON, M. D., Sullivan, Ill. |
| | | S. W. JOHNSON, M. D., Sullivan, Ill. |
| | | G. B. KESSLER, M. D., Sullivan, Ill. |
| | | S. M. BLUNK, M. D., Virden, Ill. |
| | | H. E. BALDWIN, M. D., Sidell, Ill. Health Officer |
| | | F. N. ODBERT, M. D., Indianola, Ill. Heath Officer |
| | | J. M. HICKMAN, M. D., Westville, Ill. Health Officer |
| JOHN DILL ROBERTSON, M. D., Chicago, Ill. | | WM. H. BARTON, Chicago, Ill. Supt., Washingtonian Home |
| RUTH McNARY SMITH, B. S., Ames, Iowa | | ESTHER REBOK, Marshfield, Ore. Iowa State College |
| WILLIAM REASNER, M. D., Leavenworth, Kans. | | HARLEY J. STACEY, A. B., M. D., Leavenworth, Kans. Teacher, Training School for Nurses |
| MAX J. COLTON, Cumberland, Md. | | MABEL HEAD, Cumberland, Md. Public Health Nurse |
| | | MAY K. STEINER, Cumberland, Md. Public Health Nurse |
| | | HARVEY H. WEISS, Cumberland, Md. Milk and Food Inspector |
| H. E. BERGER, Jr., Wellesley, Mass. | | THOMAS F. HARRIS, Belmont, Mass. Agt. Belmont Board of Health |
| CLARENCE D. HART, W. Somerville, Mass. | | EDGAR QUIMBY BULLOCK, M. D., Wilmington, Del. Member State Board of Health |

E. CLAIR TURNER, Cambridge, Mass.

JOHN F. WINCHESTER, D. V. S., Lawrence, Mass.

ARTHUR W. HEDRICH, Boston, Mass.

GEORGE T. BUCKELL, A. M., Houghton, Mich.

JOSEPH GERKINS, M. D., Ironwood, Mich.

H. T. G. NAUMANN, M. A., Port Huron, Mich.

WATSON FRANK WALKER, Detroit, Mich.

C. A. ABELE, Jackson, Miss.

W. C. MATTHEWS, M. D., Butte, Mont.
ALBERT F. STEVENSON, Ridgewood, N. J.

WILLIAM G. BISSELL, M. D., Buffalo, N. J.
ROBT. S. BREED, Geneva, N. Y.

FRANK J. OSBORNE, Tuckahoe, N. Y.

MINNA MARY ROHN, M. D., Bolton, N. Y.

EDWARD S. GODFREY, Jr., Albany, N. Y.

PROF. BURT R. RICKARDS, Albany, N. Y.

LUCIUS P. BROWN, New York City

LEE K. FRANKEL, Ph. D., New York City

E. H. LEWINSKI-CORWIN, Ph. D., New York City

CARL E. McCOMBS, M. D., New York City

ENRIQUE E. ECKER, Ph. D., Cleveland, Ohio
WM. H. GOULD, Cleveland, Ohio

GAIUS E. HARMON, M. D., and NORRIS P. BRYAN, Cleveland, Ohio

RUTH WEST, M. S., Glenolden, Penn.

ELLEN A. STONE, M. D., Providence, R. I.

ENNION G. WILLIAMS, M. D., Richmond, Va.

CHARLES E. GABEL, B. S., Ph. D., Charleston, W. Va.

MAYO TOLMAN, Charleston, W. Va.

EDITH M. BECKNELL, R. N., Bangor, Maine Public Health Nurse

ACHSA A. DORSEY, R. N., Newington, N. H. Industrial Nurse

JUNE RIDEOUT, R. N., Bath, Maine Public Health Nurse

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PHILIP D. BOURLAND, M. D., B. S., Lake Linden, Mich.

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CHARLES W. HAENSEL, Port Huron, Mich. Manager, Chamber of Commerce

PAUL RACHAEL, Detroit, Mich. Chairman, Welfare Bd., Burroughs Add. Machine

CYRUS MARTIN SHIPP, M. D., Water Valley, Miss. Chief Sanitary Inspector

R. C. MONAHAN, M. D., Butte, Mont. Surgeon

JOHN C. BAKER, Ph. D., M. A., Ridgefield Park, N. J. Chemist

FREDERICK C. PETERSON, Long Island, N. Y.

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MRS. EDITH J. MITCHELL, New York City. Social Worker

C. R. HERVEY, M. D., Oswego, N. Y. Sanitary Supr.

MYRON M. METZ, M. D., Williamsville, N. Y.

EDWARD GOODWIN, M. D., New York City Sanitary Supr., Jewish Agr. & Ind. Aid Soc.

CLAUDE L. PEAKE, Niagara Falls, N. Y. Industrial Secy., Y. M. C. A.

GEORGE E. ATWOOD, Hoboken, N. J. Capt., M. C., U. S. A.

WERNER HILTPOLD, M. D., Easthampton, Mass.

JAMES M. DAY, B. S., M. D., Hoboken, N. J. Major, San. Division M. C., U. S. A.

HERALDS OF LIBERTY, Philadelphia, Penn.

PARKE C. SICKLER, M. D., Wilkes-Barre, Penn. Medical Director, Heralds of Liberty

ROBERT J. CARLISLE, M. D., New York City Pub. Health Com., N. Y. Acad. of Med.

SIDNEY G. DAVIDSON, Memphis, Tenn. Supt., Baptist Memorial Hospital

L. WALLACE POTTS, M. D., B. S., Cleveland, Ohio

MARVIN D. SHIE, M. D., Cleveland, Ohio Asst. Surg., U. S. P. H. S.

LOUISE SITZENSTOCK, Cleveland, Ohio Asst. Director, University District, Pub. Health Instructor

CECILIA A. EVANS, Cleveland, Ohio Asst. Prof. of Public Health Nursing, Western Res. Univ.

ELLEN DRYDALE NICELY, R. N., Cleveland, Ohio Instructor, University District

H. O. WAY, M. S., Cleveland, Ohio Bacteriologist

WM. F. ROBERTS, M. D., Cleveland, Ohio Director, Physical Education, Central Y. M. C. A.

EDITH REYNOLDS DUNN, S. B., Glenolden, Penn. Bacteriologist

ELIZABETH M. GARDINER, M. D., Providence, R. I. Director of Child Welfare Div. for R. I.

JANE B. RANSON, Richmond, Va. Director, State Bureau Public Health Nursing

T. A. BORRADAILE, Charleston, W. Va. City Chemist

J. LOYAL GILBERT, Parkersburg, W. Va. Mayor

MRS. JEAN DILLON, R. N., Charleston, W. Va. Director, Div. Child Hygiene and Pub. Health Nursing

# BOOKS AND REPORTS REVIEWED

**A Text-book of Practical Therapeutics.** *Hobart Amory Hare, M. D., B. Sc., Professor of Therapeutics, Materia Medica, and Diagnosis in the Jefferson Medical College of Philadelphia; Physician to the Jefferson Medical College Hospital; One-time Clinical Professor of Diseases of Children in the University of Pennsylvania; Surgeon, U. S. N. R. F. Seventeenth Edition. New York and Philadelphia: Lea and Febiger. Pp. 1023. Price $5.50*

When a work of this character reaches its seventeenth edition, there is sufficient evidence in that fact alone to demonstrate its value. The present edition closely follows the previous one of 1916 in arrangement and substance, with certain important additions. The chief developments of the war which have relation to the field covered by the book are outlined, including the method of Carrel and Dakin for the treatment of wounds, and the paraffin method of treating burns. Intravenous injection and transfusion are discussed in much more detail than in the previous edition. Concordant with the apparent trend of the times the claims for alcohol are more conservative, though even in this work they would be considered extravagant by many.

It is to be regretted that the revision was made too early to summarize the expression of the medical world in regard to the treatment of influenza during the recent epidemic. Some readers will doubtless feel the lack of any bibliography in this as in the previous editions.

The work is divided into two principal portions. The first deals with drugs and other remedial measures arranged in alphabetical order, while the second considers the more important and common diseases, (likewise in alphabetical order), to the extent of the treatment that is indicated.

This volume, while by no means a complete work of reference, and in fact containing occasional rather remarkable omissions, has such a good arrangement, such a careful index and such a readable style that it will prove a popular work both for the student and the busy practitioner. *B. E. R.*

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**Rural Child-Welfare Series.** *Rural Children in Selected Counties of North Carolina. Frances Sage Bradley, M. D., and Margaretta A. Williamson. Pp. 316. 1918. Washington: Children's Bureau Publication No. 33.*

The central idea of this survey was to secure information as to the rural child, his surroundings needs and opportunities.

The object is avowedly: (1) to stimulate interest in the task of the education of mothers to methods of improving the conditions of their children; (2) to demonstrate the value of periodic examinations and the supervision of young children, and (3) to stimulate local authorities to various forms of follow-up work as outlined by the conference, involving recognition of the value of the visiting nurse, instruction in wholesome means of relaxation and diversion; prenatal care and assistance at confinement as a means of preventing the present high maternity mortality, and other considerations.

The North Carolina rural problem is so typical that this work though apparently local has a distinct bearing upon similar conditions throughout North America. *May Bliss Dickinson, R. N.*

✠

**A Laboratory Manual of Elementary Qualitative Chemical Analysis.** *For students of Medicine, Dentistry, Pharmacy and Science. A. R. Bliss, Jr., Ph. G., Ph. Ch., A. M., Phm. D., M. D. Professor of Pharmacology, School of Medicine (Atlanta Medical College), Edory University; Formerly Professor of Chemistry and Pharmacology, Graduate School of Medicine, University of Alabama, and in the Birmingham Medical College Schools of Medicine, Dentistry and Pharmacy, and Dean of the last. Second Edition, revised. Philadelphia and London: W. B. Saunders Company. Pp. 194. Price $2.25.*

By the elimination of blank pages for equations, and other minor changes, this edition has been made more compact than the first. It is noted in the preface that the Textbook Committee of the National Association of Dental Faculties has recommended it as the required text for Qualitative Analysis.

The book presupposes a knowledge of the principles of elementary chemistry. In the introduction there is an excellent elementary exposition of the subject of ionization. There is also a very good chapter on the analysis of an unknown, which did not appear in the first edition.

The subject of qualitative analysis proper is presented in a fashion comparable with that of other standard works on the subject. The general arrangement and style indicate that the manual will serve well the purposes for which it is intended.

*B. E. R.*

**A Plan for a More Effective Federal and State Health Administration.** *Frederick L. Hoffman, LL. D., Newark, N. J.:* Prudential Press.

This heading will sufficiently serve to direct attention to the very comprehensive and on the whole satisfactory review of "Health as a Function of Government" just published by F. L. Hoffman, LL. D., vice-President of the Prudential Life Association.

The reviewer knows of nowhere that more up-to-date information and sane discussion of the subject can be found than in this pamphlet. Dr. Hoffman has been trained in the school of comparative statistics and has shown a breadth of comprehension of principles, especially developed through considering health from the economic and commercial standpoint as an insurance man.

The pamphlet is especially satisfactory in the wide recognition it gives to public health as an evolution of the functions of government. He says:

"Much of what is called preventive medicine, even at the present time, is in the direction of prevention of further damage and harm rather than of a character deliberately designed to preclude the occurrence or inception of dangers which so frequently and practically continuously, threaten the individual and collective welfare in what, for want of a better term, is comprehended as the vast field of public hygiene."

The writer further well points out that:

"It may be said that instead of the individual of to-day being concerned chiefly in the efficient performance of an important but limited state function regarding himself or his family, the modern conception is rather the reverse in that the government or the state is profoundly more interested in the most successful adaption of each and every individual to his or her environment be that what it may be."

Then again it is stated:

"Under such a conception the modern health department would assume the functions of a general health administration concerned with all matters which affect the health and physical welfare of the people and not merely a function sustained almost exclusively by the police powers of the Federal Government of the State, and limited in its actual effective operation to a comparatively small, however supremely important, group of activities."

Turning to details Dr. Hoffman deals admirably with the need for a study of man in relation to health from the standpoint of "physical anthropology." He quotes from a Report to the British Government on physical deterioration which recommends:

1. The taking of periodic measurements of children in all schools and factories;
2. A registration of all cases of sickness; and
3. The adoption of wise measures for distributing information on such matters having a nation-wide bearing.

These considerations naturally lead to the question of a Ministry of Health, and the reviewer is especially pleased to find that Dr. Hoffman shows his keen appreciation of the remarkable breadth of purpose shown in Dr. Addison's "Ministry of Health Bill" just passed in the British House of Commons, and had he made his review a little later he would have made complimentary remarks on "The Federal Department of Health Bill for Canada" which has just become law.

The pamphlet next turns to "A State Medical Service" and points out most properly that while "existing state medical services are already quite considerable" their extension beyond police powers "should rest upon a totally different principle from that of the old laws, viz., the clear recognition of the duty of the state to afford the best qualified medical and surgical services to all those who are in need thereof even though they are unable to pay."

This admirably expresses what Sir Bertrand Dawson stated in the Cavendish Lectures in England last year,

(a) That much disease is preventable, and therefore, should be prevented;
(b) That every individual in the State has a right to receive when sick the best services which science can give.

The pamphlet then deals in an interesting way with the scope of federal, state and municipal police powers, and indicates their relations to one another.

In natural order Dr. Hoffman takes up what matters health administrations logically must include and places these under three divisions:

(a) General Public Health and Quarantine;
(b) Medical Practice and Physical Welfare and
(c) Statistics and Information.

All the practical problems are assumed to be included under one or other of these divisions; but the pamphlet indicates the further need for "Scientific Investigation and General Research." Obviously, it points out, no limit can be placed upon this work, since our advanced position to-day without question depends upon the knowledge which we have gained regarding disease since the days when Virchow and Pasteur laid broad through research the foundations of pathology and bacteriology.

Under several headings the pamphlet particularizes phases of public health, such as: (1) Housing and town planning; (2) States relations service, showing how federal and state work must be coördinated; (3) Communicable diseases; (4) Sanitary surveys; (5) Medical practice, pharmacy and dentistry; (6) Problems of anthropology; (7) Industrial hygiene; (8) Race pathology and tropical hygiene;

(9) Hospitals and institutions; (10) Public health and home nursing; (11) Mortality and morbidity statistics; (12) Methods of health education and military hygiene.

Several other paragraphs are devoted to administrative details such as compensation of health officers, advisory health councils, state health organizations and, finally the position which a state department should hold in a national government.

There is very little indeed, in the pamphlet which can be criticized from the standpoint of advanced public health thought and those who are especially interested in the evolution of health as a function of government will do very well to study carefully the subject from the broad viewpoint which Dr. Hoffman has taken. *Peter H. Bryce, M. D.*

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**Bacteriology and Protozoölogy for the Use of Nurses.** *Herbert Fox, M. D., Director of the William Pepper Laboratory in the University of Pennsylvania. Third Edition. (Thoroughly Revised). Philadelphia: Lea and Febiger. Pp. 222. Price, $1.75.*

No issue can be taken with the present day tendency on the part of bacteriologists and pathologists to publish their own guide of study as long as the scientific material is well presented. Dr. Fox's book fulfills this requirement. It contains sufficient detail for a clear, broad understanding of the subject. Many of the other available textbooks for nurses are mere "primers," and are far too brief to serve a useful purpose. The subject matter is discussed from the clinical as well as the strictly bacteriological standpoint. It was the author's intention to elucidate the question of how bacteria produce disease. Serologic and bacteriologic technic are not emphasized. The text is systematically covered in 15 chapters. The illustrations, of which there are many, are selected from a few well known textbooks on bacteriology. The fact that the book appears in its third edition speaks well for its popularity among the nursing profession. It can be recommended unqualifiedly. *Arthur Lederer, M. D.*

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**Reclaiming the Wounded—A Handbook of Physical Therapy.** *R. Tait McKenzie, M. D., Major, R. A. M. C., Professor of Physical Therapy, University of Pennsylvania. New York: The Macmillan Co. Price, $2.00.*

This is a well designed, well printed, well illustrated volume of one hundred and twenty-eight pages. It is written in a happy style, and contains no padding. It is practical throughout and shows on every page the wisdom of experience. It is preeminently a busy man's book.

Beginning with a concise consideration of the field of physical therapy as affected by the war with Germany, Major McKenzie discusses medical electricity, galvanism and ionization in wounds and scar tissue; the Faradic and high frequency currents; and muscle testing and exercising. Radiant heat and light, hydrotherapy, reëducation gymnastics and athletic games are discussed in practical detail. Interesting chapters are devoted to treatment by occupation and the masking of facial deformities. The book will prove of equal value to the military and industrial surgeon. *W. C. Rucker, M. D.*

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**A Letter of Complaint.**—Here is a real letter of complaint, which will serve to show health officers what their brother officers receive in their correspondence. The marks, ——, indicate deletions by the Censor:

Dear sir it does seem To me if You BOrd of Doctors Are Interested in The Helth And Sanitary Condition of ——. As You Shoul We Migt Receive Some Benefit i Dont Believe i Hae Asked Anny thing But What is Reasonable As i Wrote And Told You in My Other Letter This Pool Of WAter is About 60 Feet Square And is In About The Center Of Our Town OF —— And Only About 75 TO 100, YArds From Main Street And Children Ride Around in This Pool Of Water In Chifts This Pool Has No Out let But Durin The Wet Season Of The Year This Pool is Supplied Or Fed By Suer Pipes Leading From A Swamp And Suer Pipe Also Drains Several Clossets And Emps The Contents into This Of Water, And This Stagnated Pool CAn Be Smelt For Quiet A Distance A Way ANd Has Turned Green This Pool Is On First Avnue Where Hundred Of People Pass It Daily

Now i Am Sening You A Bottle This Water ANd Simple Ask You To Anolize it And Then Act At Once As You Are Under Prmice To Do So

Yours Truly

—— ——

# STORIES FROM THE DAY'S WORK

Brief stories of helpful experience are solicited.—EDITOR.

## FAKERS IN A SOUTHERN STATE.

Twenty-eight years ago, a supposed doctor, a stranger in the village, asked me to help him perform an operation. His fee was $1,000, $400 cash. He offered me $10,000 a year to join forces with him, and could not understand my refusal. This was my first view of charlatanism. Ten years later this man retired with a princely fortune—he had cheated it out of the sick and poor.

One can hardly realize the types of men who have been on trial under a state law in Louisiana for quackery. One could hardly believe that men, whose appearance and whose practices were in keeping with the darkest days of ignorance and superstition, could make the people believe in them. One of these was Dr. "Pap," a negro, "who never failed to cure." He was very aged, some said nearly one hundred; he took whatever fee any one could offer, and in return gave his diagnosis and two bottles of greasy stuff, lard and cotton-seed oil with residue, in an old whiskey bottle. He attracted patients, both white and colored, even from across state lines, and when arrested it was against the protests of a number in his community.

Another colored quack was a specialist for treating "warm blood in the head," another was a "pill doctor," while a Chinese followed the business of curing by means of herb tea. One was a "dropsy doctor," another, "Zagalog," treated the scalp, an old colored woman could cure "child vision," while two Spaniards were in the lot, one of whom used garlic to remove a film from the detective's eye while Felesardo was "gifted by God with power to cure."

The faker has tremendous advantages. His professed cures and treatments appeal to one of the most deeply rooted of human instincts, the love of the mysterious. He has an optimism that appeals to the sick man; it gives him the kind of philosophy that he wants; it is satisfactory in that it gives hope, and it makes the invalid a willing victim.

SOUTHERN HEALTH OFFICER.

## A HINT TO HEALTH LECTURERS.

Dr. Powhatan S. Schenck, commissioner of Public Welfare of Norfolk, Va., tells this interesting little story about a lecture before a large negro congregation. He had been invited by the pastor to speak along health lines, and knew pretty well what to expect, for he had done such things before, but to his astonishment when he reached the church he was greeted by a packed house. He had, however, heard of the plan of Dr. Rankin in North Carolina, of lining up the churches in health work, and supposed that some of the effects had come across the border, and he knew that farther south there were public movements in which whole churches joined. He complimented his audience, therefore, on its interest and enthusiasm in public health work. It turned out, however, that the notification to his congregation by the preacher had been by word of mouth, and, before his announcement that the lecture would be on "Sanitation" reached the back of his church, the outstretched ears of the "brethren" had heard it "Sanctification" and, gossip spreading this idea, it being a subject dear always to the negro's heart, they came one and all to listen.

## BATHS ARE GOOD FOR HOGS BUT DANGEROUS FOR MEXICANS.

Quite recently, while making a series of sanitary inspections of Mexican camps throughout Los Angeles County in company with a representative from the State Housing Commissions, we found an exceedingly interesting illustration of the great need for supervision of sanitary appliances in order to get the ignorant to use them.

Several years ago we had jointly recommended, at a large labor camp, the installation of shower baths for the Mexican laborers. They seemed to be quite successful for a time, but owing to the pressure of other work the labor camp in question was not visited for quite a period.

At the time of the present story, we inquired very solicitously concerning the use of the shower baths. The manager took us to see them, and on our approach a most remarkable condition was disclosed. The Mexican in whose charge the shower baths were had converted the entire series of bath houses, with their beautiful concrete floors, into pig pens, and through the bars placed in the frame of the open doors jauntily stuck the noses of several clean pigs. At the time of our visit, in fact, two pigs were getting their daily shower bath. Naturally, we were not only amused but somewhat chagrined at finding this condition of affairs. On calling the Mexican, the latter said, "Cold water fine for pigs but h—l on Mexicans. Mexican no takem cold bath—pig likem good." Exit sanitary inspectors.

J. L. POMEROY, M. D.,
*Los Angeles County Health Officer.*

# PUBLIC HEALTH NOTES

Abstracts by D. GREENBERG, M. P. HOROWITZ and MAYO TOLMAN.

**North Carolina Adopts Law Regulating Insanitary Privies.**—On February 24, 1919, the North Carolina State Board of Health adopted a new law regulating the use and supervision of privies. The law affects every community under 20,000 population and every farmer whose house is not more than 300 yards from his neighbor. It is specified that all privies shall be licensed and shall comply with the sanitary regulations of the State Board of Health regarding construction and maintenance if within 300 yards of the neighboring residence. It is provided that the inspectors and officers of the State Board of Health shall be responsible for the supervision over all privies and it is specified who shall be held responsible if insanitary privies are found. An insanitary privy will have its license revoked, and in its place a notice is to be fastened reading "Insanitary: Unlawful to Use." A penalty of $5 to $50 or imprisonment for a period not exceeding 30 days is fixed. Licenses will be issued at the rate of 40 cents per privy, the money being used to maintain the bureau of inspection and supervision. For this purpose a bureau of sanitary engineering and inspection will be organized and maintained to study and recommend the best type of privy for the geologic, sociologic, and economic conditions of a community, to supervise the construction and maintenance of the privies and to participate in other functions pertaining to the protection of the public health.—*Special Bulletin No. 171*, North Carolina State Board of Health, April, 1919.

(*M. P. H.*)

**Sanitary Conveniences for Cities.**—The relation of personal cleanliness to the public health is a matter too frequently slighted. It is a duty of cities to provide public comfort stations so that the citizen may not be forced to retain harmful waste products in his system or else impose on private institutions such as hotels and department stores. Bathing and laundry facilities should be provided for even the poorest. Street drinking fountains should be conveniently located throughout congested districts. The health of an entire city can be directly affected by the cleanliness of any part of it.—*Ohio Health Journal*. (*M. T.*)

**Organization of Social Hygiene in Municipalities.**—Adequate support for local organizations engaged in social hygiene is assured by a working agreement which has been made by the four principal national agencies concerned with the subject, namely, the United States Public Health Service, the Interdepartmental Social Hygiene Board, the Law Enforcement Division of the Commission on Training Camp Activities, and the American Social Hygiene Association.

These four bodies have created an informal Council of Four, to consist of one representative of each, and have agreed that all matters of local organization will be passed upon by the entire Council.

As a preliminary, one representative or more will be designated in each state, to survey all the cities and pick out the existing organization in each city that is best adapted to promote the interests of social hygiene. In most cases the representative who discharges this function will probably be an official of the state board of health.

In a city where there is no suitable existing organization, arrangements will be made to aid in the formation of one in case public sentiment seems to warrant such action.—*Social Hygiene Bulletin*, May, 1919. (*D. G.*)

**The Next Step in the Tuberculosis Movement.**—Various experts on tuberculosis in England recently got together in a symposium to discuss the next step in the tuberculosis movement. The following include some of the suggestions made:—establishment of dispensaries, institutional care for early and advanced cases, farm colonies and after care, home treatment, improved housing, better milk supply, dental treatment, segregation of the incurable and quarantine of all infectious cases, care of the tuberculous soldiers and sailors, child conservation, a deeper interest by the medical profession in the economic and sociologic problems of their patients, open air schools for delicate children and general, wide-spread education.—Editorial, *Journal of Outdoor Life*, May, 1919. (*M. P. H.*)

**Prevent Diphtheria by Immunizing all Babies.**—Abram Zingher of the New York City Health Department has outlined what appears to be a practical method of immunization against diphtheria. He would have all babies under twelve or eighteen months of age immunized by injections at one week intervals of three successive doses of 10 cc. each of toxin-antitoxin. For older children he would apply the Shick test and immunize all found susceptible. The development of a reliable method of immunization should save some of the 23,000 lives now exacted as a yearly toll by this disease.—*Ohio Public Health Journal*, January, 1919.

(*M. T.*)

**Experimental Control of the Milk Supply of a Small City.**—Geneva, N. Y., is a city of about 15,000 people and is supplied with milk from forty to fifty farms in the immediate vicinity. The milk is delivered to the city once a day so that the morning's milk is two to four hours old and the night's milk about fourteen to sixteen hours. The control of the milk supply has been under the direction of the New York Agricultural Experiment Station. The milk is delivered to two central distributing stations from which it goes to the consumer after it has been pasteurized. The pasteurization is so efficient that the bottled milk, as a rule, gives a count of less than 10,000 per cubic centimeter. The milk supply was controlled chemically, bacteriologically and through intelligent inspections. The bacteriological results were obtained by the microscopic method. The inspections took the form of demonstrations and really represented an educational campaign. No suggestion for a change was made unless analytical data were available to demonstrate its necessity. Efforts were also made to rule out those milks containing pyogenic streptococci. Out of 11,851 cans of milk that were examined, 345, or 2.91 per cent, showed the presence of long chain streptococci. Dr. R. S. Breed, who was in charge of the experiment, urges the sediment test in preference to the bacteriological test, as an index of dirt and foreign matter in milk. He maintains that the factors which produce a high bacterial count in milk are: 1, udders infected with streptococci; 2, poorly washed milk cans; 3, poorly sterilized milking machines; 4, improper cooling. Dust and dirt, in his estimation, affect the bacterial count per cubic centimeter but little.—*N. Y. State Jour. of Medicine*, April, 1919. (*M. P. H.*)

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**Food Rationing and Nutrition.**—The restriction on food through rationing and the use of substitutes for the staple articles of the diet, such as margarine for butter, does not result in an unsatisfactory condition of nutrition and an impairment of the general health. This is shown by some figures quoted by Dr. G. Rose in his annual report to the Aberdeen School Board. In a table giving heights and weights it is seen that Aberdeen children of five, seven and thirteen years of age in 1917–18 are much the same as those of the same ages in 1912–13. This report shows that the food rations have been sufficient in amount and in quality to keep school children in a state of health and nutrition equal to that of prewar times, so far as the experience of Aberdeen is any indication.—*Medical Officer*, March 22, 1919, 92. (*D. G.*)

**Nutrition Clinics in Public Schools.**—The fact that malnutrition is due only in a minor degree to poverty, to tuberculosis, to syphilis or to other obscure diseases, but in the great majority of cases is due to adequate causes such as physical defects, improper food habits, overfatigue and errors of home and school life, makes the work of correcting malnutrition for the greater part educational. Therefore such work should be carried on in the school, where health habits and practical hygiene can be taught as a part of the school program.

An experiment along this line, conducted in one of the New York City schools, demonstrated the great value of the class method of correcting malnutrition. The child was weighed each week and his weight charted. Then the probable reasons for gain or loss were discussed with the group, and suggestions made to help in the child's gain the following week. These suggestions had to do with the use of tea or coffee, food habits, the need of open windows, etc. As each child saw his own chart and recognized the reason for gain or loss, his coöperation was obtained in every instance. In addition, a half hour rest period was taken in the forenoon, and a similar one advised to be taken in the afternoon at home. Each child's home was visited by the nutrition worker with the object of obtaining the parents' coöperation in getting their children to gain, and of finding causes in the child's home life that prevented gain.

The results obtained were remarkable, for these children who had been given instructions in health habits, and for some of whom certain physical defects were removed, gained 25 per cent faster than the expected gain.—W. R. P. Emerson, *Amer. Jour. of Dis. of Child.*, April, 1919, 251. (*D. G.*)

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**Mental Hygiene and the Public School.**—The importance of a health examination of each child on school entrance is becoming more and more evident, for this is a strategic period in a child's life for a physical examination, and one at least as thorough and searching as that to which our millions of recruits were subjected. The examination should include the recording of important traits of behavior, qualities of mind, and irregularities of physiological and mental functioning, which will point to a reconstructive pedagogy during the career of the school child.

This matriculation examination must be supplemented with a period of observation which will not relax during the whole school career of the child, but which will be particularly intensive during the first year. In other words the child will be detained under a watchful semi-probationary régime which will discover and record his strength and his weak-

ness. It is apparent that there is need for the development of a new type of school nurse who, by supervision, corrective teaching, and home visitation, will further the concrete tasks of mental hygiene. Her clients would be the child with night terrors, the over-silent child, the stammerer, the extremely indifferent child, the pervert, and a whole host of unhealthily constituted growing minds.—A. Cesell, *Mental Hygiene*, Jan., 1919, 4. *(D. G.)*

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**Housing and Infant Mortality.**—Dr. Leonard Hill, director of the Department of Applied Physiology of the Medical Research Committee of England, in an address on the relation of housing conditions to infant mortality, brought out the following interesting points:

High mortality among infants was due to excess of respiratory and digestive ailments, particularly of the latter. Proper feeding was, then, of paramount importance. The rate of cooling of the body was closely connected with both causes of high infant mortality, for the cooling and evaporative power of the air acted not only on the skin, but also upon the respiratory membrane. Physiological research had proved conclusively that it was not the chemical impurity, but the physical conditions of close air, which made for discomfort and impoverished health. On the low cooling and evaporative powers, and want of open-air exercise, depended the ill health of sedentary workers, who dwelt in tenements, traveled in stuffy, crowded conveyances, worked in such schoolrooms or factories, ate in such canteens, and sought amusement in such cinemas. It was open air and exercise, plus good feeding, which had converted weedy citizens into robust soldiers, which restored the weakly in open-air schools and the consumptive in sanatoria.

Custom put the same or even more clothes on the town infant as on the rural infant. The people were traditionally brought up to fear the open air and seek a debilitating degree of warmth. The radiant heat of the sun and the invigorating, cooling, and drying power of the wind were the health factors of seaside and mountain resorts. These were kept out by high buildings and close courts. Mothers lost their children by seeking to save them by over-coddling and feeding. The one great need of a child was freedom to play in the open air untrammelled by and unnoticed by his elders. The child of the well-to-do was tied to the apron-string of a nurse, its wonderful body, the fruit of nature's workshop through ages of evolution, was sacrificed to the vagaries of fashion and vanity. Babies were smothered in cradles and prams; older children, when not coddled at home, were confined at school, open air exercise being barred to them on the slightest sign of wet or dark.—*Medical Officer*, April 26, 1919. *(D. G.)*

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**Venereal Disease in United States Troops.**—The following table presents the conditions of venereal disease in all troops in the United States by months, July, 1918–January, 1919, inclusive, as reported to the Surgeon-General on weekly telegraphic reports:

| | *July* | *August* | *September* | *October* | *November* | *December* | *January* |
|---|---|---|---|---|---|---|---|
| Mean monthly strength | 1,439,580 | 1,584,159 | 1,621,425 | 1,551,065 | 1,537,953 | 1,191,764 | 841,839 |
| Total admissions | 23,370 | 25,100 | 28,521 | 13,276 | 8,554 | 6,564 | 4,210 |
| Annual rates per 1,000 of strength based on admissions per month | 169.7 | 205.97 | 228.67 | 89.01 | 72.22 | 57.25 | 65.01 |
| Approximate number of cases contracted before enlistment | 20,331 | 23,924 | 25,954 | 11,949 | 7,262 | 5,432 | 3,283 |
| Percentage of total admissions representing before-enlistment cases | 87% | 91.3% | 91% | 90% | 85% | 82.8% | 78% |
| Percentage of total admissions representing after-enlistment cases | 13% | 8.67% | 9 % | 10% | 15 % | 17.2% | 22% |
| Approximate number of cases contracted after enlistment | 3,039 | 2,176 | 2,567 | 1,327 | 1,281 | 1,128 | 927 |
| Annual ratio per 1,000 of strength based on after-enlistment cases of months | 22.0 | 17.8 | 20.5 | 8.80 | 10.82 | 9.83 | 14.31 |

—*Social Hygiene Monthly*, March, 1919. *(D. G.)*

## STATE HEALTH NOTES—LEGISLATION.

**California.**—In an opinion written by Justice Shaw, of the Second District Court of Appeals, the right of health authorities to isolate or quarantine persons afflicted with venereal disease has been upheld. The case arose over the refusal of a patient in a Los Angeles hospital to remain in quarantine. The patient was remanded to the custody of the health authorities. (*M. T.*)

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**Kansas.**—On June 26 the Kansas State Board of Health amended the regulations for the control of venereal disease. These regulations now include a standardized form of procedure for health officers. Syphilis, gonococcus infection and chancroid are declared to be notifiable on account of their infectious character. Every person who knows himself to have one of these diseases is required to place himself under the care of a legally qualified practitioner of medicine, or shall report to the local or state health officer. Every physician or other person who treats an individual with one of these diseases is required to report it in writing to the State Board. In cities where regulations exist for the reporting of these diseases this notification to the State Board shall be through the local officials. The report may be by number provided the physician will assume full responsibility for the conduct of the person affected, and provided the person reports for treatment every seven days. Any person who suspects that his treatment is being unduly prolonged, or who may be threatened that his identity will be revealed if he discontinues treatment, may apply to the State Board for information and advice. It is required that the physician give to the patient a circular of instruction furnished or approved by the board, and to notify the board of the fact.

It is further required that in any city where the local regulations demand that the druggist report sales of venereal disease remedies, that the local health officer shall send forward the information to the State Board.

Regulations concerning occupations of infected persons are amended so as to include these items. No such person shall be employed in a public bathroom or swimming pool or barber shop. Proscribed occupations include that of nurse, nursemaid, domestic servant, barber, hair dresser, chiropodist, manicure, bath attendant, masseur or any other occupation in which the infection may be transmitted to other persons. No infected person may engage in an occupation which involves intimate contact with children, or the preparation or handling of foods, beverages, etc.

Infected persons may not take up residence in the state of Kansas, excepting upon written permission from the secretary of the board, and such permits may be obtained through the boards of health of the home city of such persons. Travel of such infected individuals is forbidden from one health jurisdiction to another excepting with a permit, and the same restriction applies in the case of removal from one portion of a health district to another. Permits will be issued only with the proviso that treatment shall be continued.

Other changes in the regulations provide for examinations of individuals, and their isolation, and inasmuch as prostitution is the most prolific source of infection, local health officers are empowered to use every means in suppressing the same.

Still another section of the new version of the regulations prohibits the common carrier from transporting infected persons not having a permit.

Two other Kansas regulations enacted on June 26 have reference to stillbirths and certificates. The term. stillbirth, shall be applicable to any delivery of a dead infant which has passed the twenty-eighth week of intrauterine life. Certificates of birth or death must be written plainly in black ink or with the typewriter.

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**Massachusetts.**—The Maternity Benefit Bill has passed the Senate. This would enable the State Health Department to aid expectant mothers with incomes of $15 or under, needing assistance, by medical care including nursing, and, if need be, by a grant of money not exceeding $12 a week.

The School Hygiene Bill, which was to provide that every city and town shall employ a physician, a school nurse, a director of physical education and training, and that such may appoint a school dentist. This bill would promote the welfare of the school child and is a logical step in the development of public health in Massachusetts. It was lost.

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**Missouri.**—At its last session the legislature enacted a law giving the State Board of Health authority to promulgate and enforce adequate rules and regulations for the control and prevention of communicable diseases. By this the board has been able to comply with the requirements of the Interdepartmental Social Hygiene Board and active coöperation was begun on July 1. The amount of the allotment received by this state is $35,808.

A bill was passed by the recent legislature creating a Division of Child Hygiene in the State Department of Health. This law also gives the board general supervision and regulation of the physical inspection of public school children of the state. Another bill gives the State Board of Health supervision of the quality of water dispensed to the public.

## STATE HEALTH NOTES—GENERAL.

**Nova Scotia.**—An exceptionally interesting and profitable meeting of the Association of Medical Health Officers of Nova Scotia was held at Antigonish on the 1st and 2d of July. Papers dealing with a variety of public health problems were presented and keenly discussed. Special contributions to the program were made by Prof. D. Fraser-Harris in a paper entitled "The Medical Profession as a State Service," and by Mr. A. B. Dawson in a paper entitled "Recreation as a Public Health Measure." Professor Harris' paper, which ably set forth the advantages of the state assuming responsibility of curative as well as preventive medicine, naturally attracted much attention. The Association is to meet next year at Kentville, where, conjointly with the Medical Society of Nova Scotia, special sessions on tuberculosis will be held at the Nova Scotia Sanatorium.

**California.**—The Extension Division of the University of California is giving a course in eugenics in San Francisco. The course takes the form of fifteen lectures in which the following topics are covered: Problem of Human Evolution; Preliminary Survey of the Field; The Laws of Heredity; The Transmission of Human Defects; Mode of Inheritance of Insanity, Feeble-mindedness and other forms of Mental Defection; The Inheritance of Mental Ability; The Hereditary Factor in Crime and Delinquency; The Decline of the Birth Rate; The Relative Birth Rates of Different Classes of the Population; Causes of the Decline in Birth Rate; Hereditary Influence of Alcohol and Disease; Natural Selection of Man; The Various Forms of Natural Selection among Human Beings; Racial Influence on Infant Mortality; War and the Race; An Estimate of the Different Ways in Which War May Modify Human Inheritance; Sexual Selection in Men, Its Past and Present Influence and Its Possibilities; Industrial Development and Racial Inheritance; The Elimination of Defectives; Sterilization and Segregation; Religion as a Factor in Race Development; Religious Selection Past and Present; The Present Trend of the Race; General Summary and Discussion of Various Forces Working Towards Racial Deterioration or Improvement. (*M. T.*)

**Colorado.**—Hugh Forsythe Lorimer, M. D., formerly of Olney Springs, Col., has been appointed secretary of the Colorado State Board of Health, in place of Erlo E. Kennedy, recently deceased. Doctor Lorimer's duties began on July 15.

**Idaho.**—Dr. Ernest E. Laubaugh, medical advisor in the Idaho Department of Public Welfare, has been appointed special venereal disease officer for that state.

Because of the fact that Idaho's legislature failed, in the closing hours of its recent session, to make an appropriation meeting the Federal government's anti-venereal disease grant, the State Department of Public Welfare has been forced to appeal to county boards of commissioners for funds. Idaho must raise approximately $3,600 in order to obtain the appropriation made the state under the Chamberlain-Kahn Act.

The Idaho public welfare department clashed recently with the mayor of the town of Nampa when that municipal officer refused to quarantine a smallpox case. After a jury trial the mayor was convicted on a charge of having failed to comply with department regulations and fined. It is believed that the case will have a wholesome effect on other communities.

**Illinois.**—Through increased appropriations made by the General Assembly just adjourned, provisions have been made for the following additions to the staff of the State Department of Public Health: Assistant epidemiologist, two additional full-time medical health officers, and a statistical clerk for the Division of Communicable Diseases; supervising nurse for the division of tuberculosis; medical assistant and a general supervising nurse for the Division of Child Hygiene and Public Health Nursing; a chief of the newly created Division of Biologic and Research Laboratories; chief of the Division of Public Health Inspection; two junior bacteriologists for the Division of Diagnostic Laboratories; two sanitary engineers for the Division of Sanitation; farm sanitation advisor for the Division of Surveys and Rural Hygiene. There is a general increase in the clerical and stenographic forces of all divisions and particularly in the Division of Vital Statistics.

**Indiana.**—The Indiana State Board of Health began its grand drive against venereal disease on July 1. On that date it came into possession of the $29,000 appropriated by the National government and also an equal sum appropriated by the state government. Dr. William F. King, director of the Bureau of Venereal Diseases, has laid broad and extensive plans for the fight.

**Kansas.**—At the annual meeting of the State Board of Health, held June 26, 1919, Dr. Florence Sherbon of the University of Kansas was elected chief for the Division of Child Hygiene, *vice* Dr. Lydia Allen DeVilbiss, resigned, and Dr. B. K. Kilbourne as chief of the Division of Venereal Disease, *vice* Captain Millard Knowlton, resigned.

The Epidemiologist of the board, Dr. T. D. Tuttle, has inaugurated an anti-typhoid vaccination campaign in thirty-five counties in the state.

**Iowa.**—Dr. Jeannette F. Throckmorton has been appointed, by the Iowa State Board of Health, state lecturer in social hygiene work among girls. She will work under the direction of the director of Bureau of Venereal Diseases.

On July 4th the Iowa State Board of Health welcomed the following new departments created by the 38th General Assembly as follows: State Housing Commission, State Plumbing Commission, Bureau of Venereal Diseases.

**Missouri.**—A public health meeting of state-wide interest was recently held in Springfield, Mo. It was conducted through the efforts of the Missouri State Anti-Tuberculosis Society and the Springfield Chamber of Commerce, on completion of a health survey in Greene County.

The Missouri State Medical Association at its last session at Excelsior Springs unanimously endorsed a resolution to support the State Board of Health in the anti-venereal disease campaign.

The new Boone County hospital at Columbia has recently opened.

A new county hospital will soon be completed and put in operation by Audrain County at Mexico, Mo.

Ray County in the near future will vote upon a bond issue for a hospital in that county.

The county hospital plan is becoming popular and several counties expect to hold elections for bond issues for that purpose during the coming year.

**New Jersey.**—The New Jersey Health Officers Association held a meeting at the Monterey Hotel in Asbury Park on June 26. Mr. R. S. Patterson of the State Board of Venereal Disease Control delivered an address in which he outlined the proposed plans for coping with the venereal disease situation in the state. Mr. James A. Tobey of the same bureau spoke on "The Legal Aspects of Venereal Disease Control." The health officers present discussed the matter and expressed themselves as favorable to the work and anxious to coöperate. The plan of the United States Public Health Service was also approved.

The health officers of Essex County, N. J., have formed a county health officers association. Sanitary inspectors and public health nurses will also be admitted to membership. The cities in the county include Newark, the Oranges, Bloomfield, Irvington, Montclair, Nutley, Belleville, and Glen Ridge. Dr. C. V. Craster of Newark is temporary chairman and Mr. W. B. Palmer, milk inspector of the Oranges, is secretary.

**New York City.**—The New York City Health Department has announced that after July 16 no narcotics can be obtained legitimately in New York except by those registered with the Health Department.

**New York State.**—Meeting of State Health officers at Saratoga Springs.—About 600 health officials and 400 nurses attended the Eighteenth Annual Conference of Sanitary Officers and the First Annual Conference of Public Health Nurses of New York State, at Saratoga Springs, June 24–26. Excellent programs were presented. Provisions were also made for conferences of sanitary supervisors with the local health officers of their respective districts.

In conjunction with the foregoing meetings which were called under the auspices of the New York State Department of Health, there was also a meeting of the New York State Sanitary Officers Association. Among the speakers at this meeting was the secretary of the American Public Health Association, who extended an invitation to the New York State Association to affiliate with the A. P. H. A. He further suggested that the New York State Association consider the advisability of organizing local health societies and of coördinating the state forces which are at present interested in the promotion of public health. These suggestions were very favorably received and committees were appointed.

The following officers were elected to serve for the coming year:

President, Maj. William G. Bissell, M. D., LL.D., D. P. H., 484 William St., Buffalo, N. Y.

First vice-president, Guy E. Turrell, M. D., Smithtown Branch, Long Island.

Second vice-president, Charles D. Kline, M. D., Nyack, N. Y.

Third vice-president, Thomas E. Bullard, M. D., Schuylerville, N. Y.

Treasurer, Capt. George F. Mills, M. D., Oneida, N. Y.

Assistant treasurer, Myron M. Metz, M. D., Williamsville, N. Y.

Secretary, Maj. Montgomery E. Leary, M. D., Rochester, N. Y.

At a meeting held in Utica on June 16, representatives of the Committee on Hygiene of the Board of Education, the Child Welfare Board, Agency for Dependent Children, the Utica Dispensary, Camp Healthmore, the Baby Welfare Committee, Junior League and Day Nursery, the Red Cross, Associated Charities, the Utica Chamber of Commerce and the County Tuberculosis Committee voted to organize a Health Coördination Committee.

In the by-laws adopted the purposes of the organzation are set forth as follows: "The coördination

of the health activities in the community, the promotion of public health education, the support of approved health measures, and coöperation with the local health authorities in the protection of public health and in meeting emergencies relative to public health. The committee shall consist of from five to twelve members and so far as practicable each shall represent an organization engaged in coöperating in public health activities. The local health officer shall be a member *ex-officio*."

At a meeting of the Saratoga County Medical Society held on Friday, June 13, at Arrowhead Inn, Saratoga Lake, Dr. J. S. Lawrence of the State Department of Health spoke on the Control of the Spread of Venereal Disease. Dr. J. C. Ayer discussed the importance of correct diagnosis of syphilis, after which he gave a demonstration of the administration of salvarsan.

According to Doctor Sheehan of Port Chester, the Board of Health of that community had decided that a venereal disease clinic should be opened in connection with the child welfare station.

Syracuse has opened a municipal venereal disease hospital and has placed Dr. A. J. MacGruer, who has recently returned from France, in charge of same. Doctor MacGruer has been associated with the dermatological department of the Free Dispensary, and is a very competent man in the diagnosis and treatment of syphilis. The new clinic will be used also as a detention hospital. When complete the staff will include a nurse, another medical attendant and a housekeeper.

A venereal disease clinic has been opened in Batavia within the last month with Doctor Carr in charge.

A resolution was passed by the city council of Oswego authorizing the establishment of a venereal disease clinic and appointing Doctor Calisch as the physician in charge.

As the result of a petition presented by more than 50 per cent of the property owners of the town of Islip, on Long Island, a garbage collection district has been established by vote of the town board. The contract which has just been awarded calls for the payment of $7,500 per year. The district comprises the unincorporated villages of Islip and East Islip and includes a population of about 3,000. The action was taken at the instigation of the Community Association and Dr. Frank Overton, sanitary supervisor.

The Essex County Chapter of the American Red Cross has voted to employ a public health nurse. Miss Lorraine Liebeck has been appointed community nurse for the town of Wheatland, Livingston County. Appropriations for public health nurses have been made at Fort Plain and St. Johnsville. Mount Morris is to have the services of a community nurse who will work under the direction of the town and village health officer. Miss Helen Cotter, R. N., of Utica has accepted the position of county tuberculosis nurse of Madison County.

At the recent tuberculosis clinic held at Malone on June 5, the examination of the chest of the patient was followed by the taking of X-ray plates, and the collection of sputum for bacteriological diagnosis.

The clinic was in charge of Dr. Stanley W. Sayer, sanitary supervisor, and Miss Bessie Lavier, Franklin County tuberculosis nurse. Dr. Fred H. Heise, superintendent of Trudeau Sanatorium, was in charge of the physical examination, and Mr. Homer Sampson of the X-ray work, the development of the plates being done at the Alice Hyde Hospital.

The following results were obtained:

| | |
|---|---|
| Chest examinations | 25 |
| X-ray examinations | 15 |
| Positive diagnosis without X-ray | 4 |
| Positive diagnosis with X-ray | 7 |
| Total positive cases | 11 |

Nearly one half of the positive cases were post influenzal.

At the laying of the corner stone and dedication of a new building at Letchworth Village early last month, a state institution for the feeble-minded, Governor Alfred E. Smith said that there are at least 33,000 defectives in the state and only about 5,000 are properly provided for. The governor and Frank A. Vanderlip, president of the Board of Managers of Letchworth Village, urged the speedy completion of this model institution which will eventually house 5,000 patients and be the largest of its kind in America.

"The care of the feeble-minded is of immense importance," said the governor. He declared that the program now being developed by the State Commission for Mental Defectives will "have an important bearing on the future well-being of the entire population of the State."

"New York many years ago," said Governor Smith, "was the pioneer in the care and treatment of mental defectives. Even though the state may have lagged behind other commonwealths in more recent years, the steps taken during the last six months go a long way to restore New York to her former enviable position." Every community has its quota of feeble-minded who are not receiving proper care."

Mr. Vanderlip called especial attention to the care with which the institution has been planned and constructed.

"From the start," he said, "there has been but a

single object in view, to build the best institution possible, to get the best possible type of men and women to manage it, and to give the best care and treatment to the children who are sent here, often for the term of their natural lives."

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**North Carolina.**—Community health work was emphasized together with the utilization of all local organizations at the Social Work Conference at the University of North Carolina Summer School the week beginning July 13. The program included the presentation by the State Board of Health of a number of health problems; the medical inspection of children question, on which subject Dr. G. M. Cooper, director of the work in the state, was the speaker; Child Welfare Work, which was discussed by Mrs. Kate Brew Vaughn, chief of the Bureau of Infant Hygiene; and on one evening the film, "Keeping Fit," was shown.

A total of 722 cases of venereal diseases were reported during June to the office of Dr. James A. Keiger, director in North Carolina for the State Board of Health and the United States Public Health Service, in their joint efforts to eradicate venereal diseases.

This is the largest number of cases reported for any month since the enactment of regulations requiring physicians to report these diseases, as well as others that are communicable. This does not mean that there were more cases in the past month, but rather that more nearly complete reports are being made. Both physicians and druggists are manifesting a keen interest in the work being done and are showing a fine spirit of coöperation.

North Carolina has now a privy law. It is framed so as to afford a man protection against the privy maintained by his neighbor. The closer the neighbor's privy, the greater the danger from it as long as it remains in an insanitary condition. For this reason the emphasis of the law is placed upon privies within 300 yards of where anyone lives other than the user thereof. This law is now in effect. It demands that every privy coming within these requirements be forthwith and immediately rendered sanitary. After October 1, 1919, the penalty for noncompliance will be applied.

In addition to this, the State Board of Health is conducting an extensive campaign for vaccination against typhoid fever, but these measures in no way conflict. They serve only to strengthen each other.

North Carolina has, among its many other health activities, undertaken a campaign in favor of the child of four, "often times neglected because of its inability to take care of itself." It has accordingly prepared a bulletin, entitled "The Child of Pre-School Age," which it is distributing among its citizens.

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**Ohio.**—At a meeting on Tuesday, June 24, following an informal earlier gathering, the Cleveland members of the American Public Health Association formed a local branch society, adopted a constitution and by-laws, and elected officers. The following is the result of the election: President, G. E. Harmon, M. D., assistant professor of Hygiene and Bacteriology, Western Reserve University; vice-president, E. E. Ecker, Ph. D., diagnostician, Division of Health, Cleveland, O.; secretary, Mr. N. P. Bryan, district director, Division of Industrial Hygiene and Medicine, U. S. Public Health Service; treasurer, Mr. Ha.old C. Knopf, city chemist, Division of Health, Cleveland, O.; executive committee, for one year, Mr. William F. Morse, sanitary engineer; for two years, H. L. Rockwood, M. D., commissioner of health, Cleveland, O.; for three years, R. G. Perkins, M. D., professor of Hygiene and Bacteriology, Western Reserve University.

"Water supply improvements have prevented seventy cases of typhoid fever in five cities in Ohio since the beginning of the year," declared the State Department of Health recently, basing its estimate upon a comparison of the 1919 total cases reported to May 25, with the corresponding figures for last year.

Striking evidence of the value of pure water supplies was furnished by the records of East Liverpool, Zanesville, Springfield, Ashtabula and Conneaut. East Liverpool has reported no typhoid cases this year. Up to the corresponding time last year its reports totaled 12 cases. For Zanesville the 1919 total to date is 11 cases, of which 9 occurred before water from the city's new filtration plant came into general use about February 1; the other 2 are believed to be due to contact infection. Up to May 25 last year Zanesville reported 30 typhoid cases. Springfield reported 27 cases in January, 1918, and the next four months. No cases have been reported this year. Treatment of the city water supply with liquid chlorine was begun in February, 1918. Ashtabula and Conneaut placed their purification plants under expert technical supervision last November. To date this year Conneaut has reported one typhoid case and Ashtabula none. In the first five months of last year Conneaut reported 8 cases and Ashtabula 3.

Repeated instances in which physicians have incorrectly reported smallpox cases as chicken-pox, permitting smallpox epidemics to get well under way before they are known to health officials, have

caused the State Department of Health to adopt a system of following up monthly summary reports of chicken-pox sent in by local health officers.

Every mayor of a city under 25,000 population and every chairman of a township board of trustees in Ohio has received a letter from the State Department of Health, outlining the preliminary work necessary for working under the new Hughes Act, revising local health organization, etc.

These local officials in each county must take the first step in the reorganization, by gathering at their county seat as soon as possible after August 10 and forming themselves into a district advisory council for the county health district. The council will then elect a district board of health for the county, and this body in turn will appoint a district health commissioner and other officials from civil service lists, and will draw up a health budget for the district. The budget will then be presented to the advisory council and after approval by the council will be apportioned among the townships and municipalities in the district. The new officials will take active charge of health administration after January 1, when the present organization will pass out of existence.

**Wisconsin.**—The Milwaukee health department is developing a thoroughly organized system for reducing the infant mortality rate. The program includes discourses on prenatal conditions at each of fourteen substations of the child welfare department for expectant mothers.

Establishment of branches of the Milwaukee health department in various parts of the city will be sought next year by Health Commissioner G. C. Ruhland, and additional nurses will be asked.

Maj. Lee Alexander Stone, M. C., U. S. R., regional consultant of the United States Public Health Service, has been on assignment to the Wisconsin State Board of Health in connection with plans for the enforcement of the venereal disease program, and will return to Wisconsin in September for engagements to speak.

Laboratory examinations of 20,000 persons in Wisconsin in four years show that over 22 per cent are actively syphilitic, according to Dr. W. F. Lorenz, director of the Wisconsin Psychiatric Institute, in a report made to the state legislature. He recommended appointment of a commission to consider the conditions in the state and formulate combative plans for consideration by the next legislature.

## CONVENTIONS, CONFERENCES, MEETINGS.

The JOURNAL will be glad to publish the dates of prospective conventions or meetings of associations whose purposes are allied to those of the American Public Health Association.

**American Public Health Association, New Orleans, La., October 27–30, 1919.**

September —, Iowa Public Health Association.

September —, Kearney, N. J., New Jersey Health Officers Association

September 8–12, Cincinnati, O., American Dietetic Association.

September 8–12, Cincinnati, O., American Hospital Association.

September 11–13, Seattle, Wash., Health Officers' meeting.

September 17–18, Quebec Public Health Association.

September 29–30, Pittsburgh, Penn., National First Aid and Mine Rescue Meet. In connection with the dedication of the buildings of the Pittsburgh Experiment Station of the U. S. Bureau of Mines.

September 29, Cleveland, O., National Safety Council.

Week of September 29, New Orleans, La., Southern Tuberculosis Conference.

October—, Des Moines, Iowa, Mississippi Valley Conference on Tuberculosis.

October —, Richmond, Va., Health Officers' meeting.

October —, Jackson, Miss., Health Officers' meeting.

October —, California Public Health Association.

October 1–3, Long Beach, Cal., Southwestern Tuberculosis Conference.

October 1–4, Cleveland, O., National Safety Council.

October 7–9, Springfield, Ill. Illinois Public Health Association.

October 27–30, New Orleans, American Public Health Association.

November 12–14, New Orleans, La., American Society for Municipal Improvements.

November —, Minnesota Public Health Association.

1920, January, Concord, N. H., Health Officers' meeting.

1920, May —, New Orleans, National Conference of Social Work.

1920, May 12, Washington D. C., U. S. Pharmaceutical Convention.

# INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hayhurst, R. P. Albaugh and P. M. Holmes.

**Problem of Fatigue.**—This carefully composed paper discusses first the theoretical explanations of fatigue and of recovery, expressing doubt as to the conclusion of efficiency engineers, such as Taylor, that they have answered this question for the human organism, and laying stress on the importance of interest or emotion as a factor in the existence or non-existence of fatigue. Cannon's findings are that adrenin production by the organs of like name is the most probable explanation for "second wind" or the sudden accessions of energy which may take place in an individual. "What rest will do only after an hour or more, adrenin will do in five minutes or less." It is only necessary that these very important glands be stimulated to pour out their juices to the blood, but the increased efficiency is a temporary matter and adrenin production cannot be substituted for sleep and normal rest indefinitely. From this point of view, nervous breakdown would really be a condition of adrenin poisoning. Spaeth would emphasize that a definition for fatigue must take into consideration the emotional situation. Conclusions regarding tests for fatigue are that those for output are often fallacious since normal fatigue is associated more with the less efficient workers and accumulative fatigue is often associated with a high output; a question as to the relationship between accidents and fatigue; psychophysical tests are impracticable under industrial conditions with the suggestion that new forms of such testing offer a hopeful field for further work; that tests regarding the reflexes are inadequate; and that certain further tests are necessary. The writer points out that sensations of weariness are not a reliable index of the true state of diminished working capacity since an emotional stimulus may completely alter the situation. Such was taken notice of practically in munition factories by placards bearing such inscriptions as "Do your Bit," "The Germans Are Making More Propellers Than We Are! Are *You* Responsible?" etc. In regard to the length of the working day, after a review of much foreign evidence, particularly British, the writer concludes that the men who planned such radical industrial programs against long hours, night work, and overtime for women, were possessed with a profound wisdom and social vision. The author suggests limiting the term "industrial fatigue" to daily and weekly weariness and introducing the term "industrial psycho-neurosis" for accumulated fatigue in overdriven industrial workers. "In recent years scientific management has unfortunately developed along the lines of highly specialized 'motion studies,'" frequently having as objects plans for establishing a basis of piece-rate or bonus systems, but with the result that workers have considered the same as merely a special sort of drive and as governing individual bargaining instead of union bargaining so that they have urged legislation against the practices of scientific management. A very extensive classified bibliography accompanies the article.—Reynold Spaeth, *Journal of Ind. Hyg.*, May, 1919, Vol. 1, No. 1.

(*E. R. H.*)

✱

**Telephone Operators.**—The writer gives the medical aspects of nine years' experience with the New England Telephone and Telegraph Company, —the gradual improvements in working hygiene; the institution of benefit committees; of physical supervision; and the findings regarding diseases of the eyes, ears, nose, and throat, digestive tract, tuberculous, and nervous diseases. Good evidence of occupation as the sole cause of any disordered condition found among telephone operators was seldom the case. Unquestionably, standardizing the physical requirements of the employee cuts down the amount of sickness. The author's article is composed largely of case illustrations and statements of experiences, but very few conclusions are drawn. Numbers of tables are given, showing the various types of sickness. The figures for tuberculosis are too small for deductions. Stress is laid on the human element in the relationship of work and disease.—Anna G. Richardson, *Journal of Ind. Hyg.*, May, 1919, Vol. 1, No. 1, pp. 54–67.

(*E. R. H.*)

✱

**Welfare in Fuel and Iron Company.**—The annual report of the medical department of the Colorado Fuel and Iron Company summarizes briefly the statistics of 132,057 patients treated during the year. Of these, 39,722 were at mining camps, 81,899 at steel works, and the balance at Minnequa Hospital and Dispensary. Medical, surgical, and dental service is rendered. Stress is laid on teeth, tonsils, and nursing. The bulletin is well illustrated.—*Industrial Bulletin Colorado Fuel and Iron Company*, Sept. 25, 1918, 25 pp.

(*E. R. H.*)

**Disposal of Industrial Wastes.**—A recent bulletin of the U. S. Public Health Service on studies on the treatment and disposal of industrial wastes, made under the supervision of Prof. E. B. Phelps, contains much interesting material. The bulletin is composed of two papers: (1) "The Treatment and Disposal of Strawboard Wastes," by H. P. Hommon; (2) "The Determination of Bio-chemical Oxygen demand of Industrial Wastes and Sewerage," by E. J. Theriault and H. P. Hommon.

The wastes from strawboard plants create an insufferable nuisance and kill fish when discharged into small streams. The aid of the American Strawboard Company was enlisted towards the making of studies to develop, if possible, a method of purification and sludge disposal which would satisfactorily meet the requirements of State Boards of Health and Fish and Game Commissions and at the same time be practical and economical for the use of the strawboard companies. A testing station was built at the Noblesville, Indiana, plant of the American Strawboard Company and operated from January 1, 1915 to July 1, 1916. As a result of these tests it was found that sedimentation for a period of from two to three hours followed by filtration through cinders produced a final effluent suitable for discharging into a stream without danger of killing fish or creating a nuisance. It was also found that the sludge accumulating in the tanks could be dried on cinder beds in about thirty days and that the dried material had a fertilizing value about equal to the ordinary barnyard manure. The effluent would not show putrescibility at room temperature for four days. The results at the testing station were so satisfactory that the American Strawboard Company requested the U. S. Public Health Service to design a permanent unit to demonstrate on a large scale the possibility of duplicating the results obtained in the testing units.

A further result of these studies was the development of an improved procedure for the determination of the bio-chemical oxygen demanded by sewage and industrial wastes. The new procedure seems to have overcome the more serious difficulties that have been experienced in the past in the excess oxygen method, and the results obtained are concordant among themselves and of sufficient accuracy for the purposes for which they are required.

(*M. T.*)

✱

**Scope of Industrial Medicine and Surgery.**—Mock gives a history of development of industrial medicine and surgery in America, placing its inception at about ten years ago. (However, in connection with industrial hygiene, the work of Kober in 1908 for the President's Home Commission; of Graham-Rogers in the state of New York; of Doehring for the U. S. Department of Labor in 1903; of Massachusetts and New Jersey investigations; and others, antedate this period.—E. R. H.) The organizations which have been created, some independent and some in connection with existing associations such as the National Safety Council, the section on Industrial Hygiene of the American Public Health Association, the division of Industrial Hygiene of the United States Public Health Service, and the American Association of Industrial Physicians and Surgeons, are all pointed out by Mock. The relationship between industrial production and industrial medicine and surgery is covered, including the scheme drawn up by the subcommittee of the Council of National Defense, of which Dr. Otto. P. Geier was director. The relationship of the reorganization in the United States Department of Labor, of the Women's Division of the Department of Labor, of the Ordnance Department, and of the efforts to prepare industrial physicians and surgeons by medical schools are discussed. Mock estimates that there are today approximately 3,000,000 workers of the nation who are receiving the benefits of this enlightened era in industry. There still remain about 30,000,000 who are receiving no kind of health supervision. The amount of child labor still in use is unbelievable. The lack of protection against occupational diseases is appalling.—Harry E. Mock, *Journal of Ind. Hyg.*, May, 1919, Vol. 1, No. 1, pp. 1–9. (*E. R. H.*)

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**Bear in mind New Orleans! October 27–30.**

**Do not fail to be there.**

# PUBLIC HEALTH LABORATORY NOTES

Abstracted by Arthur Lederer, M. D.

**Agglutinins in the Sputum of Typhoid Patients.**—Agglutination tests performed with the sputa from typhoid patients were positive in 52 cases out of 63 patients, and the agglutination values were the same as those of the corresponding sera. The great majority of the sputa of typhoid patients gave positive agglutination in 1 to 5 and 1 to 10 dilutions. The agglutination titers of the sputa from some of the typhoid patients were as high as 1 to 12 and 1 to 160, being comparable to the results secured with the sera. The sputa of typhoid patients never agglutinated the paratyphoid A and B. The sputa from febrile patients other than typhoid and of healthy persons never presented a positive agglutination in a 2 to 5 dilution. The experiments show that sputum from typhoid patients can be employed for diagnosis.—H. Nishiguchi. *Proc. Japanese Bact. Soc.*, Tokyo, 1918; *Abstr. Bact.* 2,319 (1919).

⚜

**Phagocytosis and Agglutination in the Serum in Acute Lobar Pneumonia.**—In 33 cases of acute lobar pneumonia in which the phagocytic activity of the serum after crisis or lysis was tested with the homologous strain of pneumococcus, 28, or 85 per cent, gave definitely positive results. These results confirm and extend those previously reported by the author. In 26, or 79 per cent, of these cases agglutinative activity was demonstrable, as well. In 18 cases in which definite phagocytic activity was demonstrable in the serum after recovery either for the homologous strain or for a stock strain of known type, tests were also made with serum obtained during the acute stage of the disease, and negative results were obtained in 15. The three sera which showed phagocytic activity were obtained 24 hours or less before crisis. Serum was also examined from seven patients who subsequently died of the disease, and negative reactions were obtained in six. A positive reaction was obtained in one patient, who, after a short remission, died apparently of sepsis and endocarditis. The phagocytic and agglutinative activity of the serum developed after the recovery from infection with pneumococci of all the recognized types. It was strictly limited to organisms of the same type as that with which the patient was infected, but, as a rule, was exerted equally well on the homologous strain and on heterologous strains of the same type. It is, therefore, specific as to type, but not specific as to strains. The agglutinative activity of the serum as observed in these tests paralleled closely the phagocytic activity. The clinical value of the test will not be great as a method either of diagnosis or of prognosis, since the reaction develops only when recovery sets in.—Paul W. Clough, *Bull. Johns Hopkins Hosp.*, 30,167 (1919).

⚜

**Influence of Malaria on the Wassermann Reaction.**—The Wassermann reaction conducted according to a recognized method does not give a positive reaction in malaria at any stage of the disease. If a positive Wassermann reaction is obtained in a case of malaria it is due either to undiagnosed syphilis or to faulty technic.—J. Gordon Thomson and C. H. Mills, *The Lancet* (Engl.), 196,782 (1919).

⚜

**Malaria and the Bordet Wassermann Reaction.**—On the basis of 300 tests, of which two-thirds were made in malarial subjects, the author maintains that the Wassermann reaction retains its usual diagnostic value in malarial subjects, unless the serum examined is obtained during an actual malarial paroxysm. At this time the natural hemolytic power of the serum is often absolutely nil, as is the case in any acute affection associated with violent febrile paroxysms, and there is an apparent positive reaction through absence of hemolysis. Furthermore, this false positive reaction during malarial paroxysms is not even constantly observed, for the author obtained some negative reactions with blood obtained at the very beginning or from 12 to 30 hours after a typical paroxysm.—S. I. de Jong, *Bull. Soc. Med. des Hopitaux*, Paris, Jan. 23, 1919; *N. Y. Med. Jour.*, June 7, 1919.

⚜

**Etiology of Yellow Fever.**—The author reviews Noguchi's recent work. He states that before we can accept Noguchi's conclusions, the final proof must be obtained, namely, that pure cultures of the leptospira he has isolated will induce yellow fever in man, and also the determination of the cycle of evolution of the given leptospira in the mosquito until its final reimplantation in its vertebrate host. It would be an immense advantage if the leptospira or other germ should prove to be the actual specific agent, as this would enable us to detect the abortive and masked cases in adults and children which now perpetuate the scourge.—J. Arce, *Anal. Facult. de Med.* (Lima), 2, 53 (1919); *Jour. A. M. A.*, 72, 1710 (1919).

**Eijkman Fermentation Test.**—Huss (Stockholm) made numerous attempts to determine the optimal conditions of temperature in the search for *B. coli* in polluted waters. He found that the Eijkman fermentation test, working with a temperature of 46° C., gave very good results. With this method only 48 hours are required to obtain a definite conclusion.—Harald Huss, *Centralbl. f. Bakt.*, Jena, 2. Abt., 48, 295 (1917).

✱

**Nitrate Reduction in Humid Soil without the Addition of Sources of Energy.**—The author established the fact that the phenomena of denitrification can take place, in a soil sufficiently humid (40 per cent of water), without the addition of any organic substance as a source of energy. The presence of a layer of water which envelopes the elements of the soil gives rise to the establishment of an anaërobic medium in which the denitrifying bacteria can function freely and reduce the nitrates to a state of elementary nitrogen. In soils with only very slight amounts of organic material, this reduction can take place, provided the soils are only slightly aërated. It appears, therefore, that the presence of large quantities of cellulose is not at all necessary for complete denitrification, contrary to a very general belief.—Alice Oelsner, *Centralbl. f. Bakt.*, Jena, 2. Abt., 48, 210 (1917).

✱

**Importance of the Ketonic Function in Metabolism. Its Creation by Symbiotic Bacteria.**—In the interpretation of facts already known concerning the transformation of carbohydrates in the organism, the authors have emphasized the principal rôle which the ketonic function appears to play in vital metabolism. This chemical grouping characterizes one of the most constant steps in the oxydation of the hydrocarbon molecule as shown in particular by the study of the phenomena of the oxydation; just as the disintegration of such a molecule may yield intermediary products possessing this function, such as is the case with the formation of pyruvic acid in the course of the transformation of saccharose. In preceding works of the same authors it is shown that the symbiotic bacteria are the active agents of ketonization and this emphasizes the importance of their possible intervention in the course of certain transformations vital to the organism. Along this line, the authors' work records the results of new experiments showing that certain sugars (pentoses, hexoses, bioses) and certain polyalcohols (glycerine, mannite) are acted upon by the symbiotic bacteria of mammals and birds which partially transform them into acetyl-methyl-carbinol ($CH_3$-CO-CHOH-$CH_3$). It is to be noted that glycerine, according to the culture medium, does or does not yield dioxyacetone, which in its turn yields the acetyl-methyl-carbinol. The authors believe there are good reasons to regard the bacterium of sarbinose as a true symbiote of insects; it is known that this organism is an energetic factor of the ketonic function. On the other hand, the symbiotes have the faculty of causing synthesis under certain favorable conditions. In a medium containing nitric nitrogen and saccharose of a certain concentration, the symbiotes are able to transform the sugar into a polysaccharide the acid hydrolysis of which yields a hexose, characterized by its osazone, glucosazone. It is to be noted that with glucose, the formation of polysaccharide is always very minute, which gives rise to the belief that the molecule of levulose plays an important role in the phenomenon of synthesis. It is a remarkable fact, that the production of saccharide is always accompanied by the appearance in the medium of a certain alkalinity possibly reaching N/10 and therefore very close to that of pancreatic juice. The authors correlate these observations with certain physiological or pathological facts, namely, the inability of the diabetic or an animal from which the pancreas has been removed to fix glucose, whereas levulose is utilized by them for the formation of glycogen; the probable necessity of an alkaline reaction for the accomplishment of the work of synthesis by the liver.—Portier and Bierry, *Compt. Rend. Acad. d. sc.*, Par., 167, 94 (1918).

✱

**Placenta Broth as a Most Reliable Culture Medium for the Obtention of Diphtheria Toxin.**—Four liters of placenta are very finely minced and suspended in four liters of water and boiled for three hours. The fluid obtained after filtration is reduced to three liters, alkalinized with a 10 per cent NaOH solution until a slightly rose color is given with phenolphthaleine. The liquid thus obtained constitutes an excellent medium for the obtention of diphtheria toxin. Its only disadvantage is that it contains much albuminoid matter. To obviate this the following modification is introduced: After suspending the minced placenta in water, about 10 cc. of concentrated hydrochloric acid are added, the whole well shaken, boiled for about two hours and filtered through paper. The filtrate, alkalinized as above with NaOH, is steamed for one hour in the albuminoid material, precipitated by the heating, is then removed from the liquid, which is of yellowish color and quite transparent. In this way, by working with four liters of placenta, there are obtained four liters of broth, which is no longer clouded by the addition of acid or alkali, and in which the diphtheria bacilli grow luxuriantly and produce the maximum amount of toxin within

three to five days. The fatal dose of this toxin is on an average 0.02 cc., occasionally the fatal dose ranges between 0.01 and 0.005 cc. The weakest toxin thus far obtained with this medium was fatal with the dose of 0.05 cc.—W. Stern, *Centralbl. f. Bakt.*, Jena, 1. Abt., 82, Orig., 49 (1918).

✱

**Rapid Technique for the Impregnation of Spiral Organisms in Sections.**—The spirochaete of hemorrhagic icterus not being demonstrable in tissues by the impregnation method of Levaditi and Manouélian for the Treponema, the author modified the method. He fixed fragments of tissue 1 mm. thick in 10 per cent formol or strong alcohol, washed them in alcohol, then in distilled water, impregnated them in a 1 per cent solution of silver nitrate for one hour at 56°, finally treated them with the Van Ermenghem reductor (strong solution) containing 7 gm. of gallic acid, 3.5 gm. of tannin, 14 gm. of sodium acetate for 350 cc. of distilled water. Then embedded in paraffine, sectioned and, if desired, counterstained with methylene-blue-neutral red. —Y. Manouélian, *Compt. rend. Soc. de biol.*, Par., 81, 759 (1918).

✱

**Sterility of Catgut.**—When oil is used as an immersion fluid for the catgut, washing before planting should not be carried out if a fair check is desired on the sterility of the catgut. The suture should be taken from the tube for bacteriologic examination according to the methods commonly practiced among physicians when they have occasion to use catgut. Chromicized catgut is slightly more resistant to sterilization by heat than the plain catgut. The infection that is found is either within or on the catgut itself and is not present in the immersion oil alone. From 28 to 30 pounds pressure of live steam for 3 hours is absolutely necessary to sterilize catgut such as that which was examined. Since any contamination may be pathogenic or otherwise, it seems imperative that some system of federal control should be devised similar to that for biologic products so that all firms manufacturing catgut could be required to adhere to the same standards of sterility.—C. T. Butterfield and Leo F. Ey, *Jour. A. M. A.*, 72, 1736 (1919).

✱

**Classification of Meningococci.**—Although meningococci, when tested by Gordon's routine method against his four type serums, may show a constant type, yet when inoculated into rabbits or human subjects they sometimes appear to produce more agglutinins for other types than for the type used for inoculation.—A. G. Gibson and M. Ludlow-Hewitt, *Jour. Royal Army Med. Corps*, 5, 361 (1919).

**Etiology of Yellow Fever.**—The majority of guinea pigs inoculated with the blood of yellow fever patients escaped a fatal infection. In a number of instances a temporary febrile reaction occurred on the fourth or fifth day. Most of these guinea pigs when later inoculated with an organ emulsion of a passage strain of *Leptospira icteroides* resisted the infection. On the other hand the animals which had previously been inoculated with the blood of malaria patients or normal guinea pigs died of typical experimental infection after being inoculated with the infectious organ emulsion. Immunity reactions indicate that *L. icteroides* is etiologically related to yellow fever. It was possible to obtain a pure culture of a delicate organism, the morphological features of which place it in the genus Leptospira. On three occasions, that is, from 3 out of 11 cases of yellow fever, the organism was directly cultivated. The organism is difficult to stain by most aniline dyes. The presence of blood serum is essential to its growth. The virulence attained by some strains was such that 0.00001 c.c. of a culture could induce typical fatal infection in guinea pigs.—H. Noguchi, *Jour. Exp. Med.*, 30, 1 (1919).

✱

**Influence of Surface Tension on Bacterial Growth.**—The growth of bacteria on ordinary broth is greatly influenced by the surface tension of the medium. A sodium soap of castor oil proved to be a practical surface tension depressant. All pellicle formers cease to grow at the surface when the tension is below 45 dynes. The tendency of *B. subtilis* to form spores is considerably reduced when the organism is grown on broth medium of low surface tension. Some anaërobes, *B. tetani* in particular, grow well under ordinary aërobic conditions on medium of reduced surface tension. The layer of oil often used to cover mediums for the purpose of producing anaërobiosis, probably acts by reducing the surface tension rather than by excluding oxygen.—W. P. Larson, W. F. Cantwell and T. B. Hartzell, *Jour. Inf. Dis.*, 25, 41 (1919).

✱

**Prophylactic Vaccination of Tuberculosis.**—The vaccine used by the author is the sensitized bacillary emulsion prepared with the avirulent strain obtained by cultivating the common virulent tubercle bacilli in a medium containing trypoflavin. The emulsion contains, besides the sensitized bacilli, a certain amount of the filtered fluid of erythrodin broth medium. It therefore consists of the whole antigen of tubercle bacillus. Good results are claimed for this procedure.—K. Shiga, *Japan Med. World*, Tokyo, May 11, 1919; *Jour. A. M. A.*, 73, 66 (1919).

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